# COLLEGE OF EASTERN UTAH BUNNEL-DMITRICH ATHLETIC CENTER HVAC UPGRADE - REBID

451 EAST 400 NORTH / PRICE, UTAH 84501

AUGUST 15, 2007 REBID OF CONSTRUCTION **DOCUMENTS** 



STATE OF UTAH DEPARTMENT OF ADMINISTRATIVE SERVICES DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

> 4110 STATE OFFICE BUILDING / SALT LAKE CITY, UTAH 84114 / 801.538.3018 / www.dfcm.state.ut.us

DFCM PROJECT NO. 06162610



MECHANICAL ENGINEER:

ARCHITECT:



108 WEST CENTER STREET / BOUNTIFUL, UTAH 84010 / 801.298.1368 / www.spe-architect.com

STRUCTURAL ENGINEER:





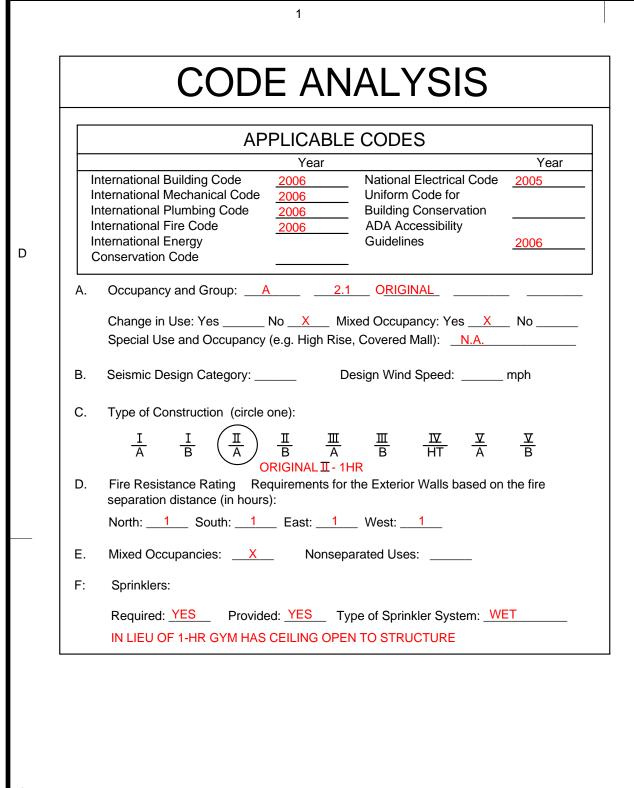
330 SOUTH 300 EAST / SALT LAKE CITY, UTAH 84111 801.530-3148 / www.vbfa.com

ELECTRICAL ENGINEER:



**SPECTRUM ENGINEERS** 

**WALKER BANK BUILDING 175 SOUTH MAIN STREET** # 300 SALT LAKE CITY. UTAH 84111 / 801.355.5151 / www.spectrum-engineers.com





T.L.

T.W.

TOS

TOW

TYP.

U.N.O.

VERT.

VWC.

WWF

W/O

TOP OF LANDSCAPING

VINYL WALL COVERING

WELDED WIRE FABRIC

UNLESS NOTED OTHERWISE

TOP OF WALK

TOP OF STEEL

TOP OF WALL

**TYPICAL** 

VERTICAL

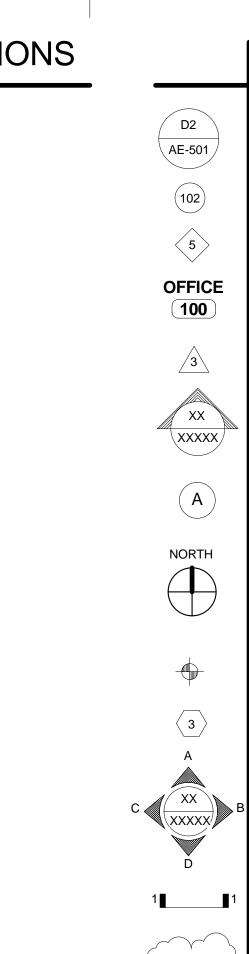
WITH

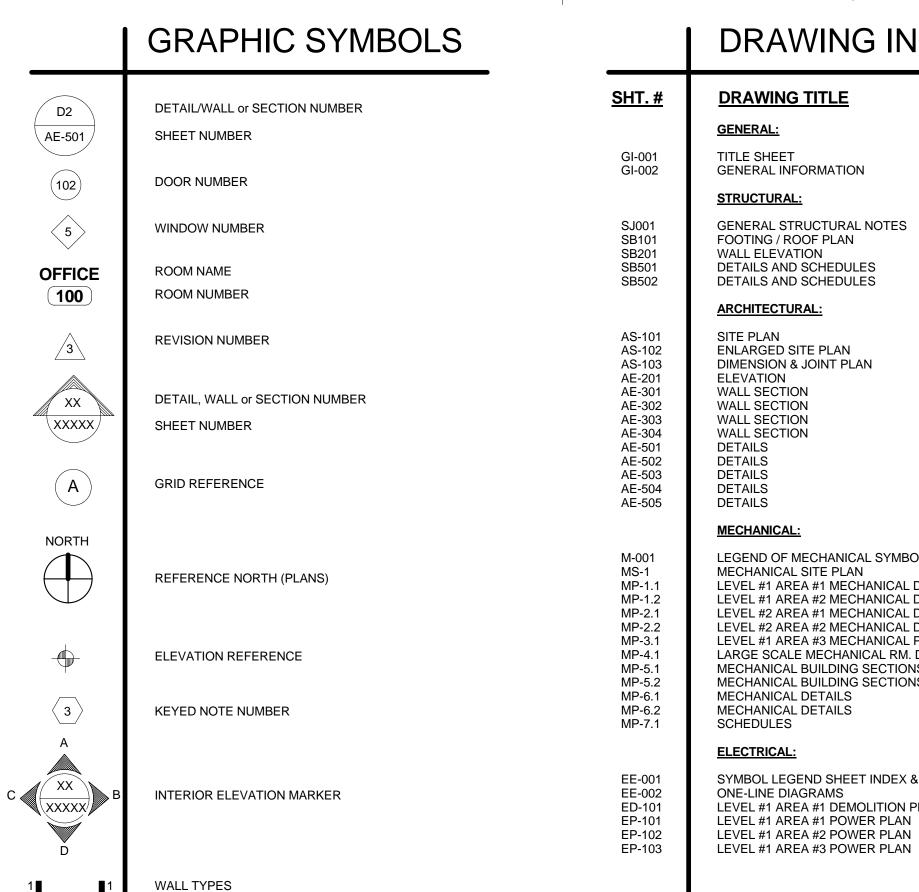
WITHOUT

	3
	MATERIAL DESIGNATIONS
	EARTH
	POROUS FILL
	ASPHALT
4	CONCRETE
	CONCRETE MASONRY UNITS
	BRICK
	CAST STONE
	CERAMIC TILE
	WOOD (FINISH)
	WOOD (STUDS, NAILERS)
	WOOD (BLOCKING)
	PLYWOOD
	BATT INSULATION
	RIGID INSULATION
	PLASTER
	ACOUSTIC TILE
	GYPSUM BOARD
	GLASS
	STEEL

PARTICLE BOARD

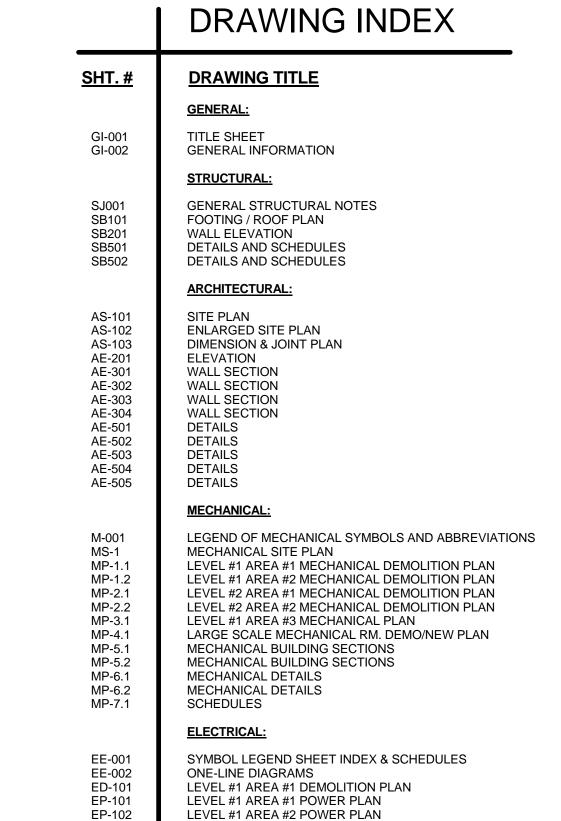
RIGID INSULATION

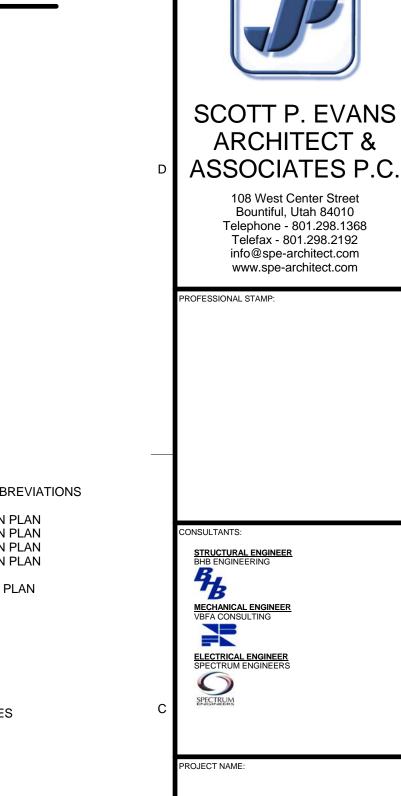




DRAWINGS REVISION

**REVISION NUMBER** 

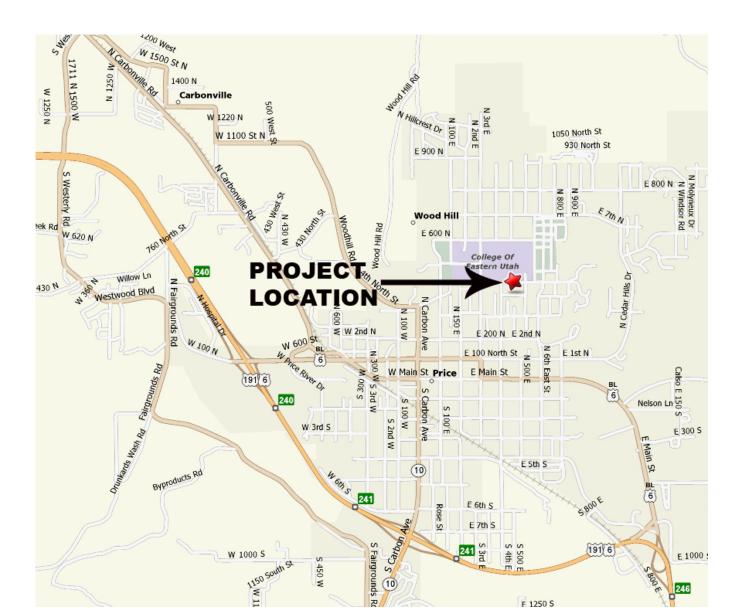


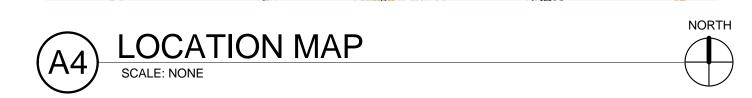


CHITECT'S INFORMATION



**VICINITY MAP** 





COLLEGE OF BUNNEL ATHLETI HVAC UPGI NO. DATE DESCRIPTION NO. DATE DESCRIPTION 5/21/07 CONSTRUCTION DOCUMENTS 2 08/15/07 CONSTRUCTION DOCUMENTS - REBID

ASTERN UTAH OMITRICH CENTER ADE - REBID

OWNER PROJECT #: 0616261 SPE PROJECT# 06-35 DRAWN BY: JBE CHECKED BY: RPL DESIGNED BY: COPYRIGHT: © 2007 SCOTT P. EVANS - ARCHITEC

> **GENERAL INFORMATION**

GI-002

# GENERAL STRUCTURAL NOTES

#### GENERAL

- 1. The structural notes are intended to complement the project specifications. Specific notes and details in the drawings shall govern over the structural notes and typical details.
- 2. Typical details and sections shall apply where specific details are not shown. 3. The contractor shall verify all site conditions and dimensions. If actual conditions differ from those shown in the contract drawings, the contractor shall immediately notify the architect/engineer before proceeding with the fabrication or construction of any effected elements.
- 4. Omissions or conflicts between the contract drawings and/or specifications shall be brought to the attention of the architect/engineer before proceeding with any work involved. In case of conflict, follow the most stringent requirement as directed by the architect/engineer at no additional cost to
- 5. The contractor shall submit a written request to the architect/engineer before proceeding with any changes, substitutions or modifications. Any work done by the contractor before receiving written approval will be at the contractor's risk.
- 6. The contractor shall coordinate with all trades any items that are to be integrated into the structural system such as openings, penetrations, mechanical and electrical equipment, etc. Sizes and locations of mechanical and other equipment that differs from those shown on the contract drawings shall be reported to the architect/engineer.
- 7. The contractor shall provide adequate shoring and bracing as required for his method of erection. Shoring and bracing shall remain in place until final connections for the permanent members are completed. The building shall not be considered stable until all connections are completed. Walls shall not be considered self-supporting.
- 8. Site observations by BHB Consulting Engineers, P.C.'s field representative shall not be construed as approval of construction procedures nor special inspection.
- 9. Detailing and shop drawing production for structural elements will require information (including dimensions) contained in the architectural, structural and/or other consultants' drawings. The structural drawings shall be used in conjunction with the architectural and other consultant's drawings. Some dimensions and elements such as elevations, depressions, slopes, mechanical housekeeping pads, etc. are not shown in the structural drawings. All dimensions shown on structural drawings shall be verified by contractor with architectural, mechanical and electrical
- 10. Review of shop drawing submittals by BHB Consulting Engineers, P.C. is for general compliance only and is not intended for approval. The shop drawing review shall not relieve the contractor from the responsibility of completing the project according to the contract documents.
- 11. Shop drawings made from reproductions of the contract drawings will be rejected unless the contractor signs a release agreement prior to the shop drawings being reviewed.
- 12. Only an authorized representative of BHB Consulting Engineers, P.C. may make changes to these contract drawings. BHB Consulting Engineers, P.C. shall not be held responsible or liable for any claims arising directly or indirectly from changes made without written authorization by an authorized representative of BHB Consulting Engineers, P.C.

#### **BASIS OF DESIGN**

1. Gove	erning Building Code	International Building	Code 2003
2. Root	Snow Load		
а	. Ground Snow Load	$P_g = 43 \text{ psf}$	
b	. Snow Importance Factor	l <sub>s</sub> = 1.1	
С	. Snow Exposure Coefficient	$C_e = 1.0$	
d	. Thermal Exposure Coefficient	$C_t = 1.0$	
е	. Roof Snow Load	$P_f = 0.7*C_e *C_t * I_s * P_g$	= 33 psf plus Snow Drift
а	mic Loads  Short Period Mapped Spectral A	Acceleration	S <sub>S</sub> = 0.467
b	. Soil Site Class		D
С	. Short Period Site Coefficient		F <sub>a</sub> = 1.0
d	. 5% Damped Design Spectral Re	esponse Acceleration	$S_{DS} = 2/3 * F_a * S_S$
е	. Seismic Importance Factor		I <sub>e</sub> = 1.25
f.	Seismic Response Coefficient		$C_s = S_{DS} * I_e / R$
_	. W		Dead Loads of Structure
h :	Building Seismic Design Catego     System Overstrandth Factor	ry	D 3.5
I.	System Overstrength Factor		2.5

#### FOUNDATION

4. Wind Loads

1. Soils Report by Rollins, Brown And Gunnell, INC., Dated June 1983. See Memo dated April 12, 2007 2. Soil Bearing Pressure: 1500 psf, on Compacted Fill. 3. Frost Protection: 30 inches minimum. 4. Lateral Soil Pressure Fluid Equivalent Density. .. 35 pcf (retaining walls) a. Active ... b. At Rest. .. 55 pcf (rigid foundation walls) . 300 pcf c. Passive..

Deflection Amplification Factor

a. Wind Velocity (3 Second Gust)

c. Wind Importance Factor

k. Out of Plane Shear

b. Exposure Type

#### **EARTHWORK**

5. Coefficient of Friction

1. Memo by RB&G dated April 12, 2007 states northeasterly part of the building can have footings placed on native soil if non-frost susceptible material be located within the upper 70% of the frost

90 mph

1.15

V= = 0.22 W (Strength Design)

- 2. It is recommended that 15 inches of non-frost susceptible material be located beneath slabs and mechanical pads.
- 3. Consult the project specifications and soils report and memo from RB&G for earthwork requirements.

#### CONCRETE

1. Materials, unless noted otherwise:

d. Headed Stud Anchors (HSA)

- ASTM C 33 a. Normal weight aggregates ASTM 615 Grade 60 (Fy = 60 ksi) b. Reinforcing Steel
- Use Grade 40 (Fy = 40 ksi) for field bent dowels with spacings indicated reduced by 1/3. ASTM A496 c. Deformed Bar Anchors (DBA)
- e. Anchor Rods Typical, uno ASTM F1554, Grade 36, with ASTM A563 heavy hex

nuts and hardened washers Grade A

ASTM A108

- f. Admixtures:
- Air-entraining admixtures comply with ASTM C 260 (when used). Calcium chloride shall not be added to the concrete mix.
- g. Type I/II cement complying with ASTM C-150 shall be used for all concrete.
- h. The water/cement ratios shall meet the requirements of ACI 318. i. Provide air entraining as recommended by ACI 318.
- No aluminum conduit or product containing aluminum or any other material injurious to concrete shall be embedded in concrete.
- 2. Compressive strengths of concrete at 28 days shall be as follows: a. Footings .. .. 3,000 psi
- ..3,000 psi b. Walls.. c. All Site Concrete. .4.000 psi
- 3. Only one grade or type of concrete shall be poured on the site at any given time.
- 4. The contractor shall be responsible for the design, detailing, care, placement and removal of all
  - a. Supporting forms and shoring shall not be removed until structural members have acquired sufficient strength to safely support their own weight and any construction load to which they may be subjected. In no case, however, shall forms and shoring be removed in less than 24 hours after concrete placement.

5. Reinforcement shall have the following concrete cover:	
Cast-in-place Concrete:	Clear Cover
a. Cast against and permanently exposed to earth	3"
<ul><li>b. Formed concrete exposed to earth or weather:</li></ul>	
#6 thru #18 bars	2"
#5 and smaller bars	1-1/2"

c. Concrete not exposed to weather or in contact with ground:

Slabs, Walls, Joists; #11 bars and smaller...

- Beams, Columns: Primary Reinf., Ties, Stirrups, Spirals.......1-1/2" 6. Construction
  - a. Use chairs or other support devices recommended by the CRSI to support and tie reinforcement bars and WWF prior to placing concrete. WWF shall be continuously supported at 36" o.c. maximum. Reinforcing steel for slabs on grade shall be adequately supported on precast concrete units. Lifting the reinforcing off the grade during placement of
- concrete is not permitted. b. Concrete to be mechanically consolidated during placement per ACI standards.
- c. Contractor shall coordinate placement of all openings, curbs, dowels, sleeves, conduits, bolts, inserts and other embedded items prior to concrete placement.
- d. All embeds and dowels shall be securely tied to formwork or to adjacent reinforcing prior to the placement of concrete.
- e. No pipes, ducts, sleeves, etc shall be placed in structural concrete unless specifically detailed or approved by the structural engineer. Penetrations through walls when approved shall be built into the wall prior to concrete placement. Penetrations will not be allowed in footings or grade beams unless detailed. Piping shall be routed around these elements and footings stepped to avoid piping.
- f. Reinforcing Bars shall not be welded. Do not substitute reinforcing bars for DBAs or HSAs.
- a. Lap splice lengths shall be detailed to comply with the "Concrete Reinforcing Bar Lap Splice Schedule on sheet 6/SB501" Splices may be made with mechanical splices capable of 125% tension capacity of the bar being spliced. Mechanical splices shall be the positive connecting type coupler and shall meet all Uniform Building Code requirements. Use "Cadweld", "Lenton" Standard Couplers, "Bar-Lock" or equal with internal protector. If mechanical splices are used, splices or couplers on adjacent bars shall be staggered a minimum of 24" apart along the longitudinal axis of the reinforcing bars.
- b. At joints provide reinforcing dowels to match the member reinforcing, unless noted otherwise. c. At all discontinuous control or construction slab on grade joints, provide 2 - #4 x 48 inches. d. Provide corner bars at intersecting wall corners using the same bar size and spacing as the
- e. All vertical reinforcing shall be doweled to footings, or to the structure below with the same size and spacing as the vertical reinforcing for the element above. Dowels extending into
- footings shall terminate with a 90 degree standard hook and shall extend to within 4" of the bottom of the footing. Footing dowels (#8 bars and smaller) with hooks need not extend more than 20" into footings.
- f. Horizontal wall reinforcing shall terminate at ends of walls and openings into the far end of the jamb column with a 90-degree standard hook plus a 6 bar diameter extension. Horizontal wall reinforcing shall be continuous through construction and control joints.

#### **EPOXY**

- 1. Epoxy shall be "HIT HY 150 MAX or HIT RE 500 by Hilti Corporation, "Anchor-it" by Adhesive Technology Corporation, "Epcon Injection System" by Ramset/Redhead, "Power-Fast" by Rawl or
- 2. All drilled holes for bars or anchors rods 1" diameter and smaller shall be 1/8 inch larger than the bar of anchor rod being installed. For bars or anchor rods greater than 1" diameter shall be smaller 1/4 inch larger than the bar or anchor rod being installed.
- 3. After drilling the proper size hole, clean the walls and bottom of the drilled hole of all dust and debris using a nylon brush in conjunction with oil free compressed air. The hole shall be free of dust, debris and standing water.
- 4. Follow all manufacturer's recommendations for epoxy installation.

#### STRUCTURAL STEEL

1. Material:	
a. Other shapes & Plates	ASTM A36

- ASTM A500 Grade B (46KSI) b. Steel Tubes ASTM F1554, Grade 36, with ASTM A563 heavy hex **Gravity Columns** nuts and hardened washers Grade A
- c. Bolted Connections: ASTM A325 2. Fabrication and construction shall comply with the latest edition of the following Codes and
- a. American Institute of Steel Construction (AISC), "Specification for the Design, Fabrication and
- Erection of Structural Steel for Buildings," with "Commentary". b. AISC "Code of Standard Practice" excluding the following: Section 3.4, Section 4.4, Section
- c. AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts"
- d. American Welding Society (AWS), Structural Welding Code (specific items do not apply when they conflict with the AISC requirements). e. AISC "Seismic Provision for Structural Steel Buildings"
- 3. Welding
- a. All welding and cutting shall be performed by AWS certified welders.
- b. Use E-70 XX or as noted otherwise. E60 XX may be used for welding steel floor and roof
- c. All intersecting steel shapes which are not bolted shall be connected by a fillet weld all around, unless noted otherwise. Where fillet weld sizes are not shown they shall be 1/16" less than the thinnest of the connected parts for thicknesses 1/4" and larger. Fillet welds on plates less than 1/4" shall be of the same size as the thinnest of the connected part.
- d. Reinforcing Bars: Do not weld rebar. Do not substitute reinforcing bars for deformed bar anchors (DBAs), machine bolts, or headed stud anchors(HSAs).
- e. Do not weld anchor bolts, including "tack" welds. f. Headed Stud Anchors (HSAs) welding and deformed bar anchor welding shall conform to the manufacturer's specifications.

#### SPECIAL INSPECTION AND QUALITY ASSURANCE

Special inspection and quality assurance, as required by section 1704 thru 1709 of the IBC, shall be provided by an independent agency employed by the owner unless waived by the building official. The contractor shall coordinate and cooperate with the required inspections. All testing and inspection reports shall be sent within 24 hours of the test to the architect, engineer and contractor for review. Special inspection during fabrication is not required if the fabricator is registered and approved to perform such work with out special inspection. Items requiring special inspection and quality assurance

- 1. Concrete reinforcing steel placement (IBC Section 1704.4)
- a. All Reinforcing shall be inspected prior to concrete placement.
- 2. Structural welding, a. Periodic special inspection of single pass fillet welds less than or equal to 5/16"
- b. Continuous special inspection of complete and partial penetration welds. 3. Epoxy Anchors (IBC Section 1704.13)
- a. Special inspection shall verify all drilled holes' size and depth prior to installation of epoxy

#### LEGEND OF MARKS AND ABREVIATIONS

LEGER	ND OF MARKS AND ABREVI	ATIONS	
AB ABV	ANCHOR BOLT(S) ABOVE	JST	JOIST
ABV ALT	ALTERNATE	k	KIP(S) = 1000 POUNDS
APPROX	APPROXIMATE	KLF	KIPS PER LINEAL FOOT
ARCH	ARCHITECT(URAL)	KSF	KIPS PER SQUARE FOOT
BLDG	BUILDING	LBS	POUNDS
BLW	BELOW	LF	LINEAL FOOT
BM	BEAM	LLH	LONG LEG HORIZONTAL
BOT	BOTTOM	LLV	LONG LEG VERTICAL
BRG	BEARING	LSV	LONG SIDE VERTICAL
BTWN	BETWEEN		20110 0.22 12.11107.2
		MAS	MASONRY
CC.	CENTER-TO CENTER	MAX	MAXIMUM
C.J.	CONST/CONTROL JOINT	MCJ	MASONRY CONTROL JOINT
CMU	CONCRETE MASONRY UNIT	MC-x	MASONRY COLUMN MARK
COL	COLUMN	MECH	MECHANICAL
CONC CONST	CONCRETE CONSTRUCTION	MFR MIN	MANUFACTURER MINIMUM
CP-x	CONCRETE PIER	MISC	MISCELLANEOUS
CRW-x	CONCRETE RETAINING WALL	MW-x	MASONRY WALL
CTR	CENTER	WW X	W CONTINUE
CW-x	CONCRETE WALL	NIC	NOT IN CONTRACT
	DEG// DEADNIG	NTS	NOT TO SCALE
DB DBA	DECK BEARING DEFORMED BAR ANCHOR	O.C.	ON CENTER
DBE	DECK BEARING ELEVATION	0.C. 0.F.	OUTSIDE FACE
DBL	DOUBLE	OPNG	OPENING
DET	DETAIL	OPP	OPPOSITE
DIA	DIAMETER		
DIM	DIMENSION	PCF	POUNDS PER CUBIC FOOT
DN	DOWN	PL	PLATE
DWG	DRAWING	PLF	POUNDS PER LINEAL FOOT
DWL	DOWEL	PSF	POUNDS PER SQUARE FOOT
EA	EACH	PSI PT	POUNDS PER SQUARE INCH POINT
E.F.	EACH FACE		1 OIIVI
E.J.	EXPANSION JOINT	REINF	REINFORCING
ELEC	ELECTRICAL	REQD	REQUIRED
ELEV	ELEVATION	R.D.	ROOF DRAIN
EQUIP	EQUIPMENT	RTU	ROOF TOP UNITS
EQ E.W.	EQUAL EACH WAY	SBP-x	STEEL BASE PLATE MARK
EXST	EXISTING	SC-x	STEEL COLUMN MARK
EXP	EXPANSION	SCP-x	STEEL CAP PLATE MARK
EXT	EXTERIOR	SHT	SHEET
		SI	SPECIAL INSPECTION
FC-x	CONTINUOUS FOOTING MARK	SIM	SIMILAR
F.D.	FLOOR DRAIN	SMU	SUSPENDED MECHANICAL UNITS
FDN	FOUNDATION	SOG	SLAB-ON-GRADE
F.F. FR-x	FINISHED FLOOR RECTANGULAR FOOTING MARK	SQ STAG	SQUARE STAGGERED
FS-x	SQUARE FOOTING MARK	STAG	STANDARD
FT	FOOT	STL	STEEL
FTG	FOOTING	STR	STRUCTURAL
FTS-x	THICKEN SLAB MARK	STS	SELF TAPPING SCREWS
GA	GAUGE	T&B	TOP AND BOTTOM
GALV	GALVANIZED	TEMP	TEMPERATURE
O/ IEV	O, IEV, II VIZED	THDS	THREADS
GSN	GENERAL STRUCTURAL NOTES	T.O.	TOP OF
	LIGHTONTAL PRINCIPLE	TOC	TOP OF CONCRETE
HB	HORIZONTAL BRIDGING	TOD	TOP OF DECK
HORIZ HSA	HORIZONTAL HEADED STUD ANCHOR	TOF TOS	TOP OF FOOTING TOP OF STEEL
HSA HT	HEIGHT	TOW	TOP OF WALL
	HEIOH	TYP	TYPICAL
ICBO	INTERNATIONAL CONFERENCE		-
ID C	OF BUILDING OFFICIALS	UNO	UNLESS NOTED OTHERWISE
IBC	INTERNATIONAL BUILDING CODE	VEDT	VEDTICAL
I.F. IN.	INSIDE FACE INCH	VERT	VERTICAL
INT	INTERIOR	W/	WITH
		WWF	WELDED WIRE FABRIC
JT	JOINT	WWM	WELDED WIRE MESH

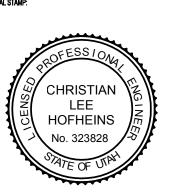


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ELECTRICAL ENGINEER SPECTRUM ENGINEERS 

ASTERN UTAH MITRICH COLLEGE OF EAS BUNNEL-DIN ATHLETIC C HVAC UPGRAD

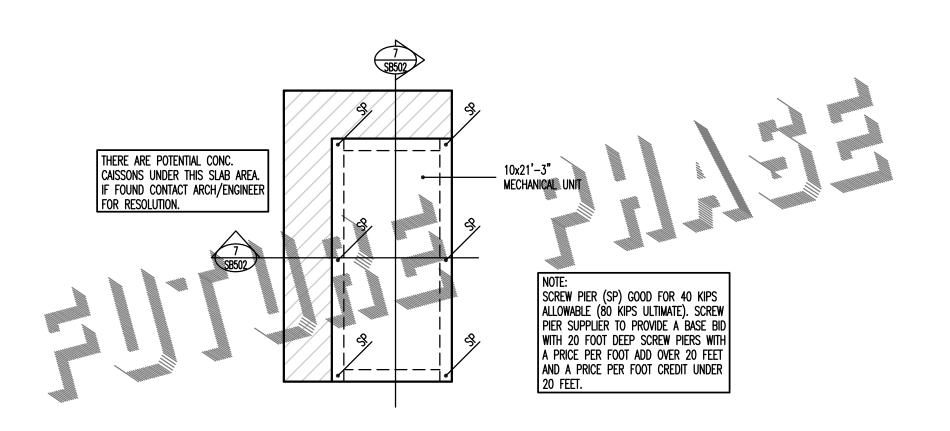
CONSTRUCTION DOCUMENTS - REB

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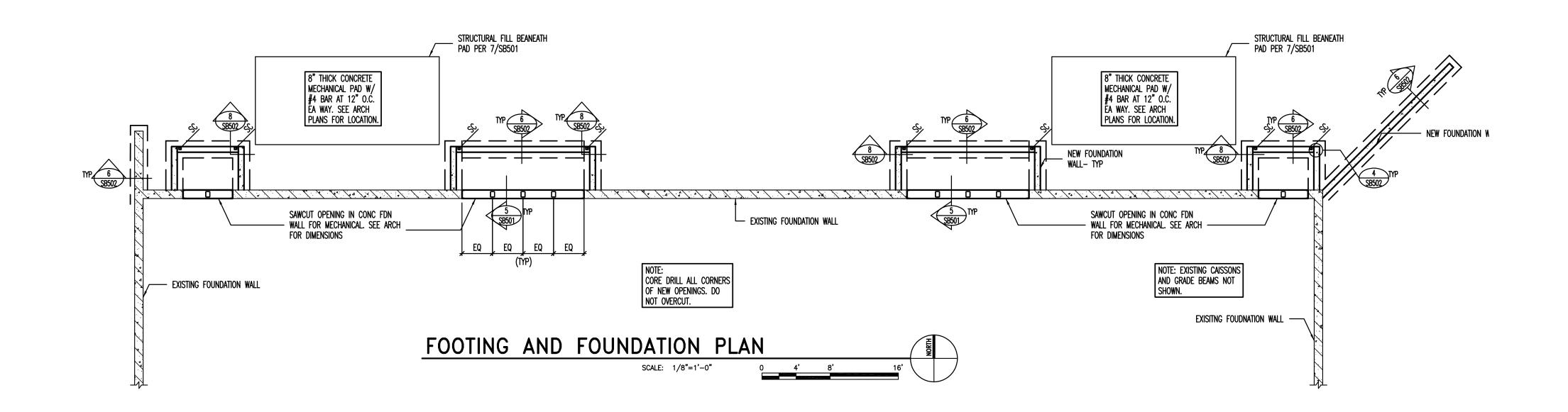
**GENERAL** STRUCTURAL NOTES

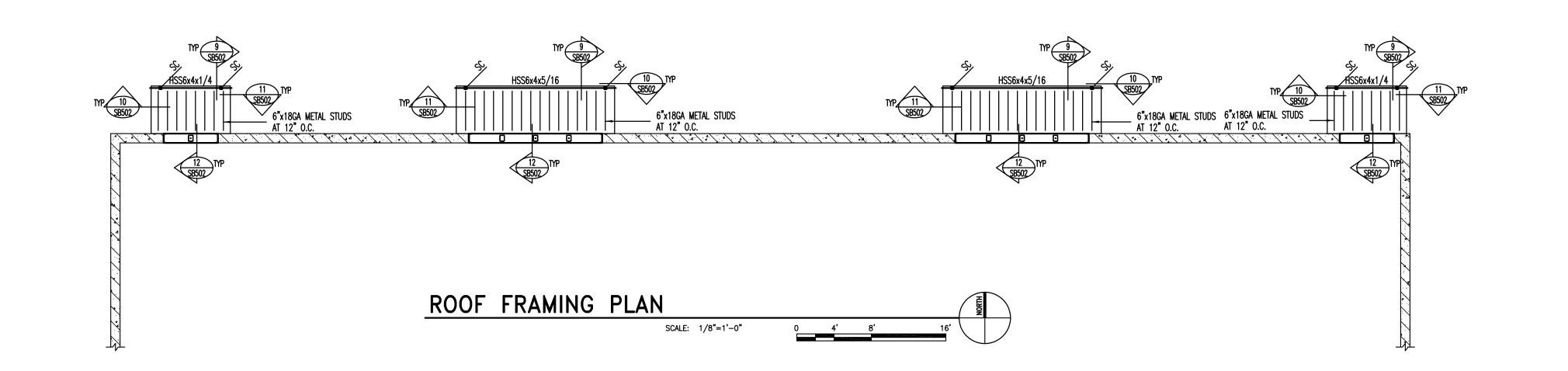
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BHB Consulting Engineers 244 West 300 North













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ELECTRICAL ENGINEER SPECTRUM ENGINEERS SPECTRUM

STERN UTAH COLLEGE OF EAS
BUNNEL-DM
ATHLETIC C
HVAC UPGRAD

# MARKS AND SYMBOLS LEGEND

SECTION MARK
SHEET NUMBER

INDICATES STEEL COLUMN. SEE DETAILS 8,10/SB502.

INDICATES SCREW PIER.

REVISIONS: AS DESCRIPTION

#### FOOTING AND FOUNDATION PLAN NOTES

- COORDINATE LOCATION OF DEPRESSED SLABS, SLOPED SLABS, AND FLOOR DRAINS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
  SEE ARCHITECTURAL AND CIVIL DRAWINGS FOR EXTERIOR CONCRETE WORK AT DOORS, SIDEWALKS, ETC.
- SEE ARCHITECTURAL DRAWINGS FOR CONTROL JOINT LOCATIONS.

  SEE DETAILS 1/SB502 AND 2/SB502 FOR CONDITION WHERE BURIED PIPES RUN PARALLEL AND PERPENDICULAR TO FOOTINGS.
- SEE DETAIL 5/SB502 FOR TYPICAL CONTROL/CONSTRUCTION JOINTS IN CONCRETE SLAB SEE DETAIL 3/SB502 FOR SLAB REINFORCING WHERE CONTROL JOINTS ARE DISCONTINUOUS.

  SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS TO ALL STEEL COLUMNS.

  SEE DETAIL 7/SB501 FOR REQUIRED FILL BENEATH FOOTINGS AND MECHANICAL PADS.

### ROOF FRAMING PLAN NOTES

- VERIFY ALL ROOF OPENINGS FOR MECHANICAL SHAFTS, DRAINS, ETC. WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

  SEE ARCHITECTURAL PLANS FOR DIMENSIONS TO ALL STEEL COLUMNS.

  SEE DETAIL 4/SB501 FOR EPOXY DOWEL EMBED SCHEDULE.

"Engineering Results"

BHB Consulting Engineers
A Professional Corporation

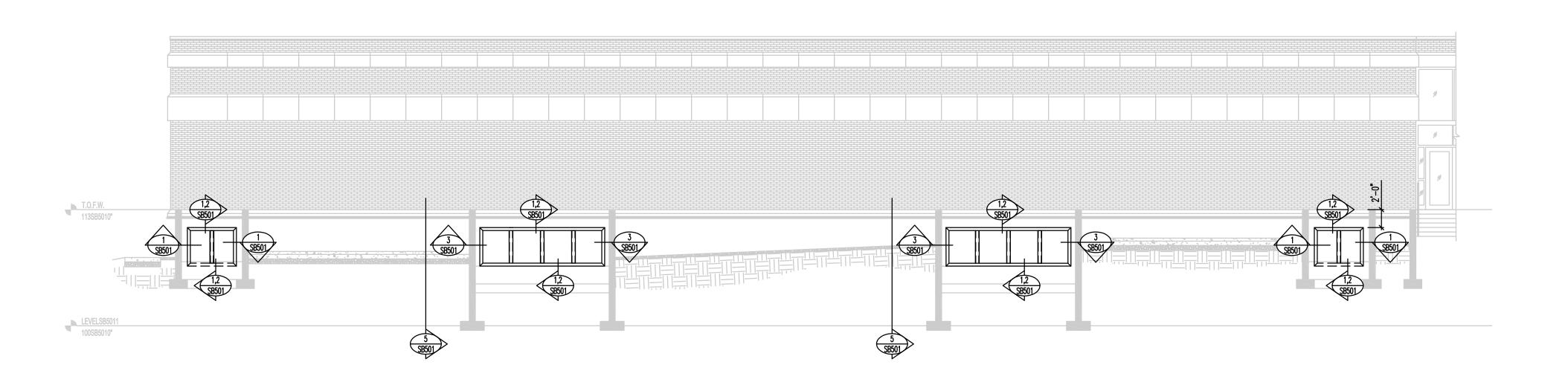
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 01
 5/21/07
 CONSTRUCTION DOCUMENTS

 02
 08/15/07
 CONSTRUCTION DOCUMENTS - REBID

WALL ELEVATION

SB101





SITE AREA 1 ELEVATION SCALE: 1/8"=1'-0"

MARKS AND SYMBOLS LEGEND



## FOOTING AND FOUNDATION PLAN NOTES

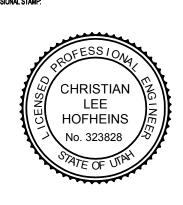
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- SIDEWALKS, ETC.
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   SEE DETAILS 1/SB502 AND 2/SB502 FOR CONDITION WHERE BURIED PIPES RUN PARALLEL AND PERPENDICULAR TO FOOTINGS.
   SEE DETAIL 5/SB502 FOR TYPICAL CONTROL/CONSTRUCTION JOINTS IN CONCRETE SLAB ON GRADE.
   SEE DETAIL 3/SB502 FOR SLAB REINFORCING WHERE CONTROL JOINTS ARE DISCONTINUOUS.
   SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS TO ALL STEEL COLUMNS.
   SEE DETAIL 7/SB501 FOR DEQUIPED FILE RENEATH FOOTINGS AND MECHANICAL DADS. SEE DETAIL 7/SB501 FOR REQUIRED FILL BENEATH FOOTINGS AND MECHANICAL PADS.

"Engineering Results"

BHB Consulting Engineers
A Professional Corporation





ELECTRICAL ENGINEER SPECTRUM ENGINEERS

SPECTRUM

COLLEGE OF EASTERN UTAH
BUNNEL-DMITRICH
ATHLETIC CENTER
HVAC UPGRADE - REBID

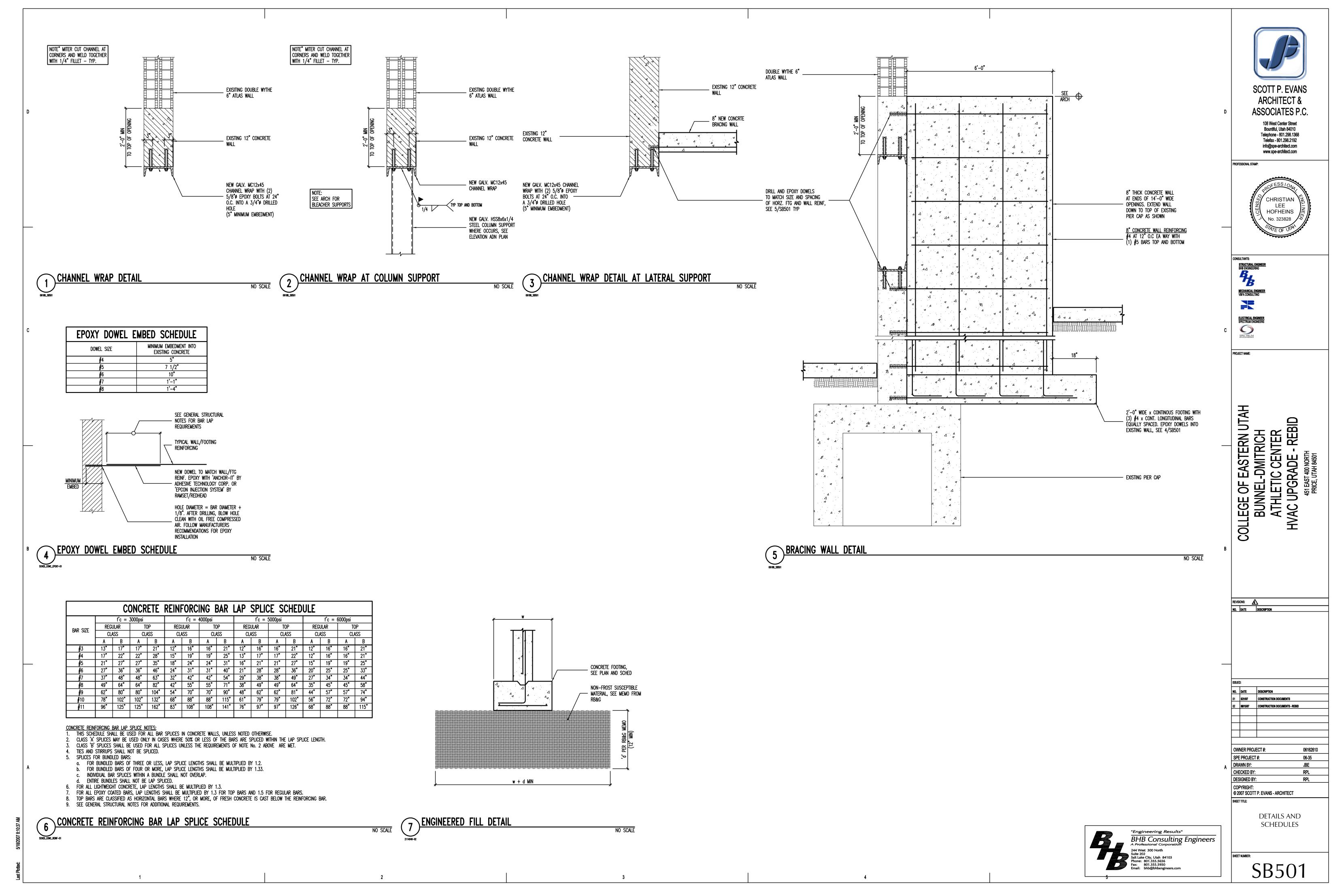
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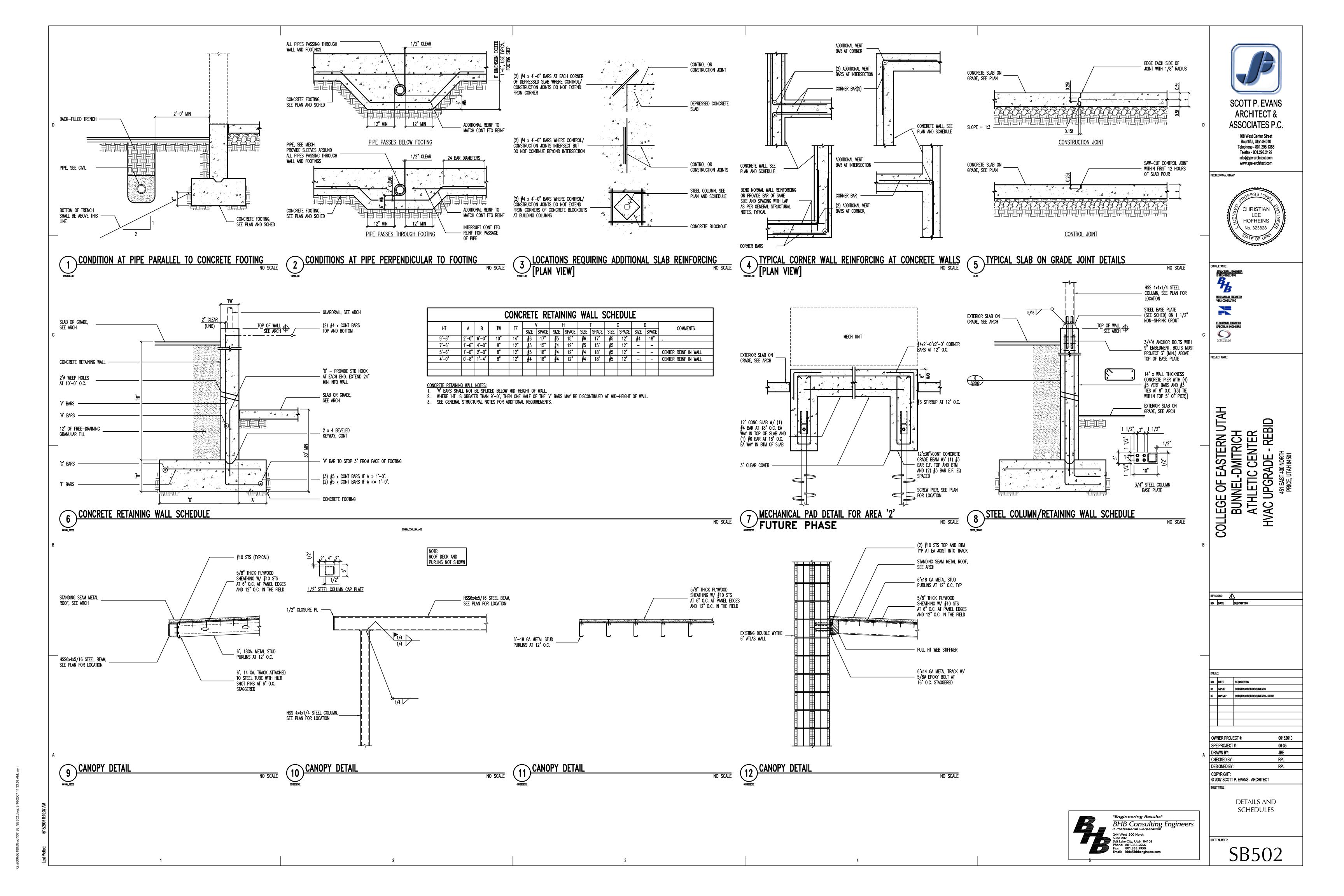
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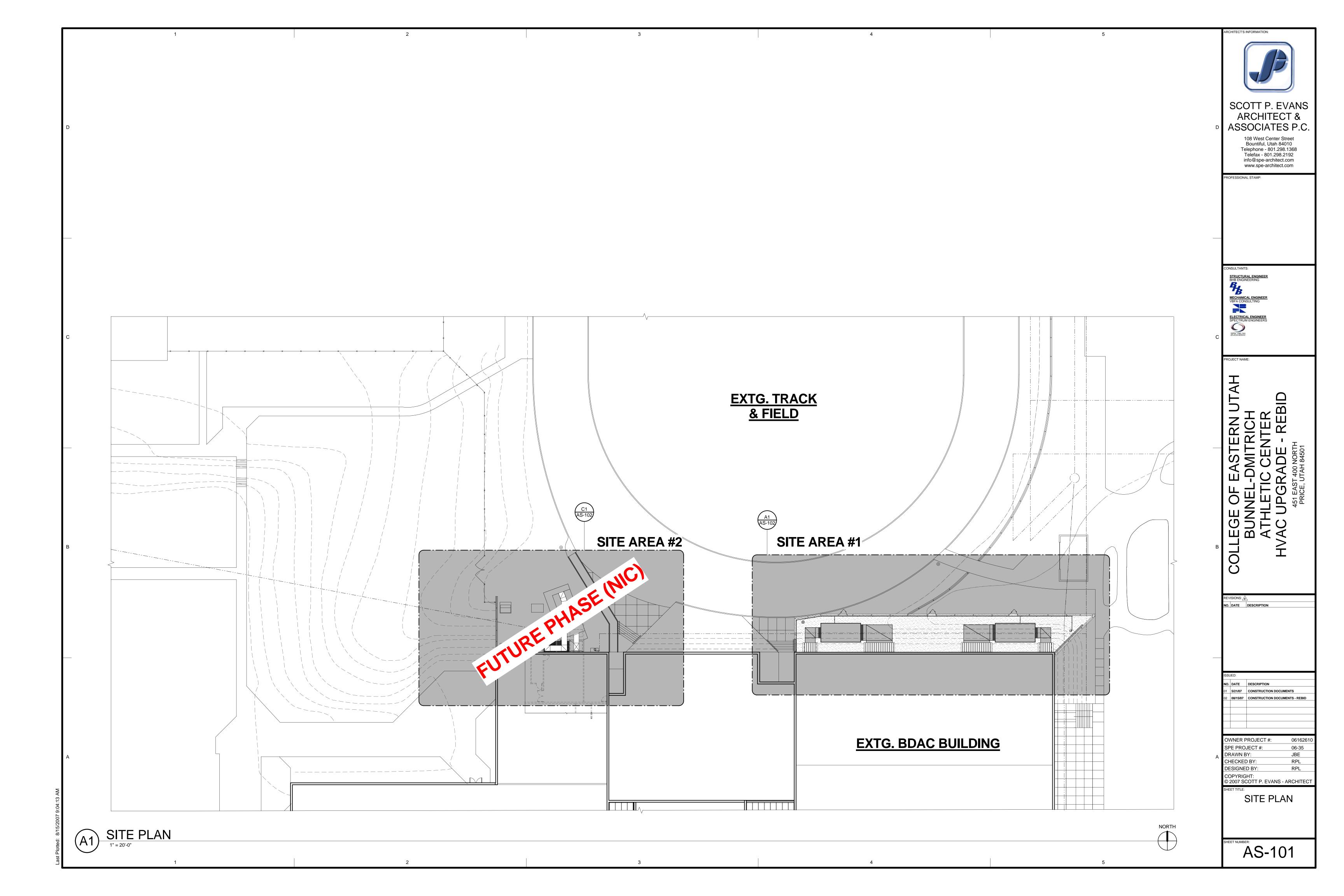
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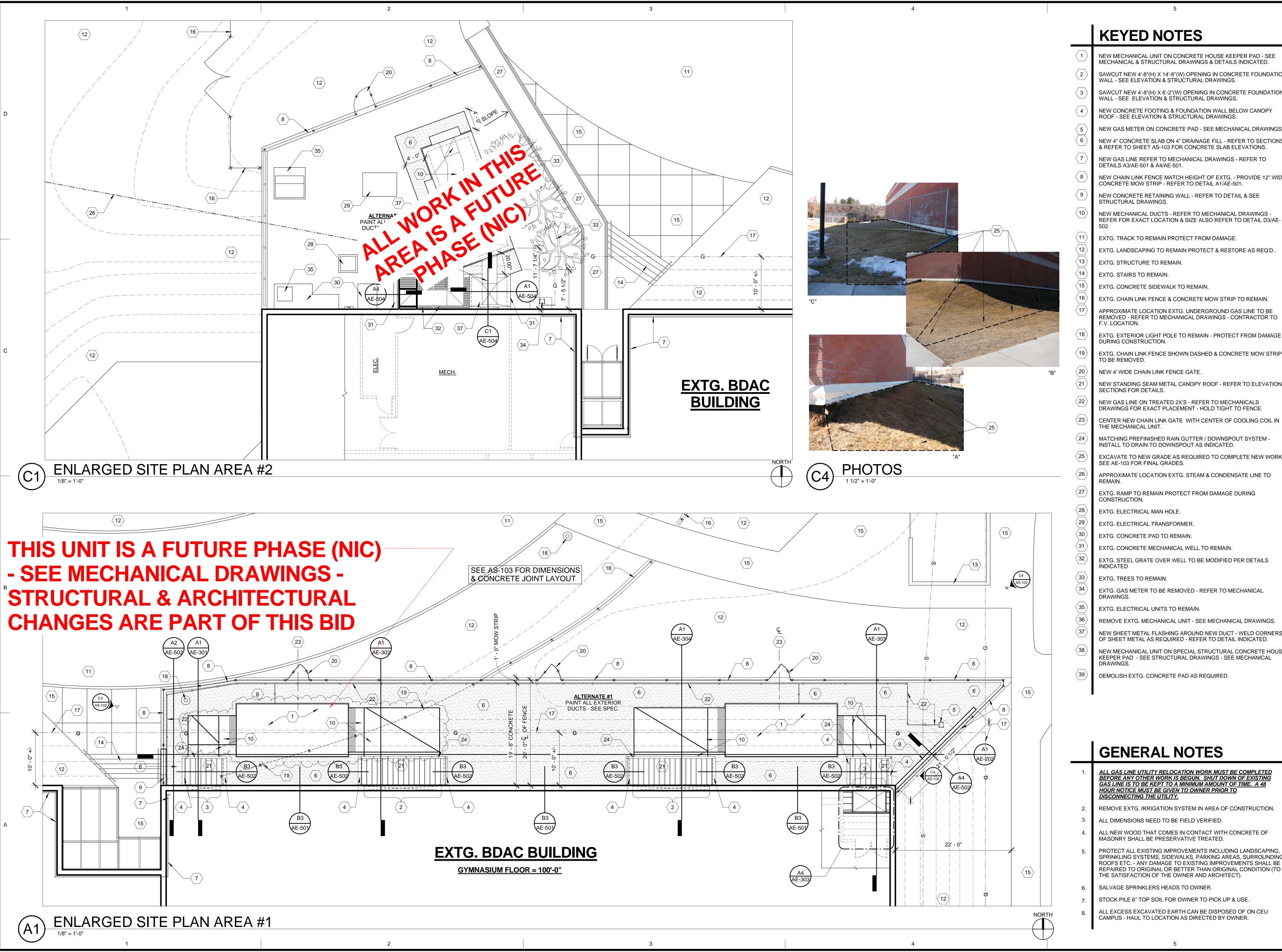
WALL ELEVATION

SB201









## **KEYED NOTES**

NEW MECHANICAL UNIT ON CONCRETE HOUSE KEEPER PAD - SEE MECHANICAL & STRUCTURAL DRAWINGS & DETAILS INDICATED.

SAWCUT NEW 4'-8"(H) X 14'-8"(W) OPENING IN CONCRETE FOUNDATION WALL - SEE ELEVATION & STRUCTURAL DRAWINGS.

SAWCUT NEW 4'-8"(H) X 6'-2"(W) OPENING IN CONCRETE FOUNDATION WALL - SEE ELEVATION & STRUCTURAL DRAWINGS. NEW CONCRETE FOOTING & FOUNDATION WALL BELOW CANOPY ROOF - SEE ELEVATION & STRUCTURAL DRAWINGS.

NEW GAS METER ON CONCRETE PAD - SEE MECHANICAL DRAWINGS. NEW 4" CONCRETE SLAB ON 4" DRAINAGE FILL - REFER TO SECTIONS & REFER TO SHEET AS-103 FOR CONCRETE SLAB ELEVATIONS.

NEW GAS LINE REFER TO MECHANICAL DRAWINGS - REFER TO DETAILS A3/AE-501 & A4/AE-501.

NEW CHAIN LINK FENCE MATCH HEIGHT OF EXTG. - PROVIDE 12" WIDE CONCRETE MOW STRIP - REFER TO DETAIL A1/AE-501.

NEW CONCRETE RETAINING WALL - REFER TO DETAIL & SEE

REFER FOR EXACT LOCATION & SIZE ALSO REFER TO DETAIL D3/AE-

EXTG. TRACK TO REMAIN PROTECT FROM DAMAGE.

EXTG. LANDSCAPING TO REMAIN PROTECT & RESTORE AS REQ'D..

EXTG. STRUCTURE TO REMAIN. EXTG. STAIRS TO REMAIN.

EXTG. CONCRETE SIDEWALK TO REMAIN.

EXTG. CHAIN LINK FENCE & CONCRETE MOW STRIP TO REMAIN

APPROXIMATE LOCATION EXTG. UNDERGROUND GAS LINE TO BE REMOVED - REFER TO MECHANICAL DRAWINGS - CONTRACTOR TO

EXTG. EXTERIOR LIGHT POLE TO REMAIN - PROTECT FROM DAMAGE DURING CONSTRUCTION.

EXTG. CHAIN LINK FENCE SHOWN DASHED & CONCRETE MOW STRIP

NEW 4' WIDE CHAIN LINK FENCE GATE.

NEW STANDING SEAM METAL CANOPY ROOF - REFER TO ELEVATION & SECTIONS FOR DETAILS.

NEW GAS LINE ON TREATED 2X'S - REFER TO MECHANICALS DRAWINGS FOR EXACT PLACEMENT - HOLD TIGHT TO FENCE.

CENTER NEW CHAIN LINK GATE WITH CENTER OF COOLING COIL IN

MATCHING PREFINISHED RAIN GUTTER / DOWNSPOUT SYSTEM -INSTALL TO DRAIN TO DOWNSPOUT AS INDICATED.

EXCAVATE TO NEW GRADE AS REQUIRED TO COMPLETE NEW WORK -SEE AE-103 FOR FINAL GRADES.

EXTG. RAMP TO REMAIN PROTECT FROM DAMAGE DURING CONSTRUCTION.

EXTG. ELECTRICAL MAN HOLE.

EXTG. CONCRETE PAD TO REMAIN.

EXTG. CONCRETE MECHANICAL WELL TO REMAIN.

EXTG. STEEL GRATE OVER WELL TO BE MODIFIED PER DETAILS

EXTG. TREES TO REMAIN

EXTG. GAS METER TO BE REMOVED - REFER TO MECHANICAL

EXTG. ELECTRICAL UNITS TO REMAIN.

REMOVE EXTG. MECHANICAL UNIT - SEE MECHANICAL DRAWINGS.

NEW SHEET METAL FLASHING AROUND NEW DUCT - WELD CORNERS

NEW MECHANICAL UNIT ON SPECIAL STRUCTURAL CONCRETE HOUSE KEEPER PAD - SEE STRUCTURAL DRAWINGS - SEE MECHANICAL

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OFESSIONAL STAMP:

WECHANICAL ENGINEER
VBFA CONSULTING

COLLEGE OF EAS BUNNEL-DN ATHLETIC C HVAC UPGRAI

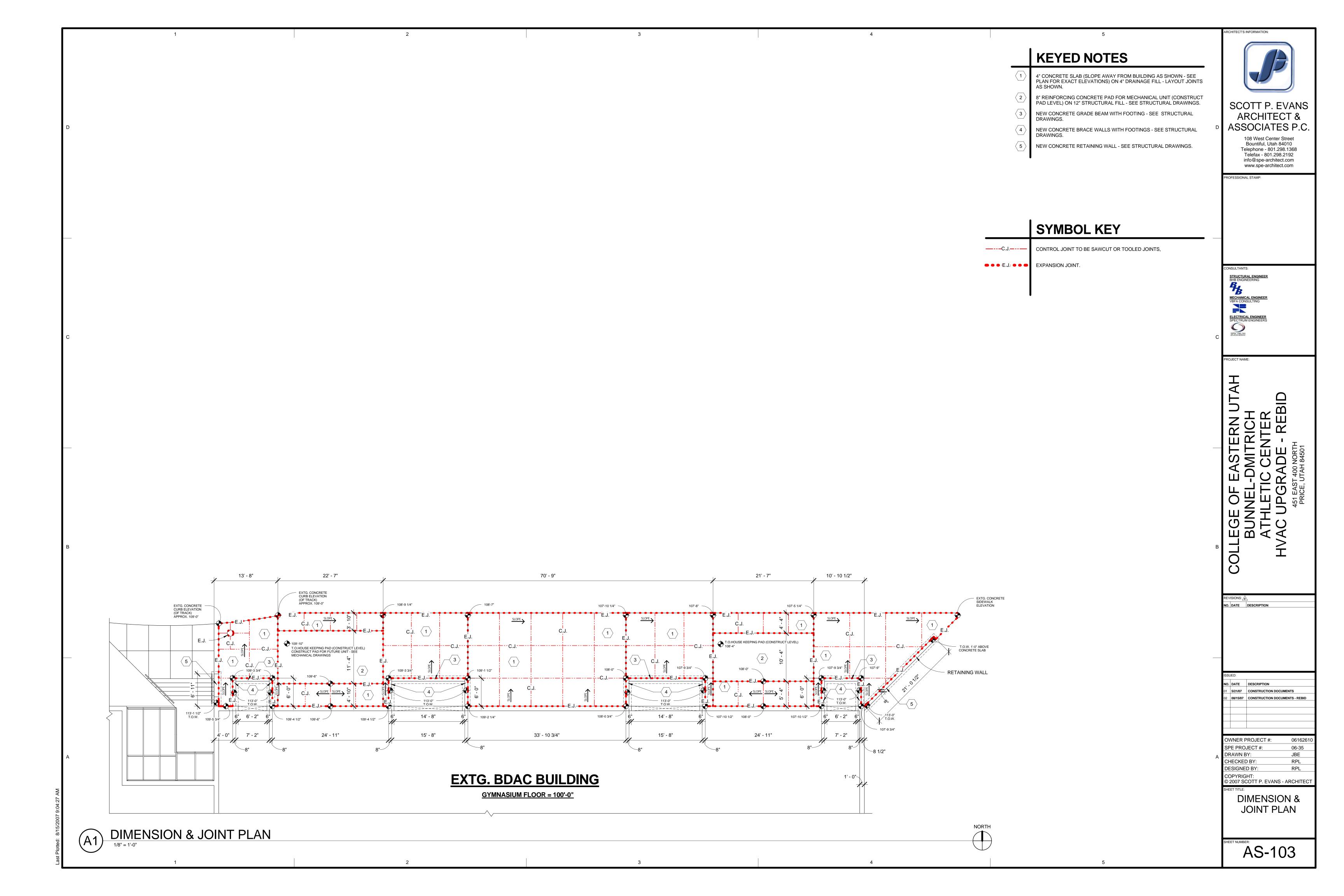
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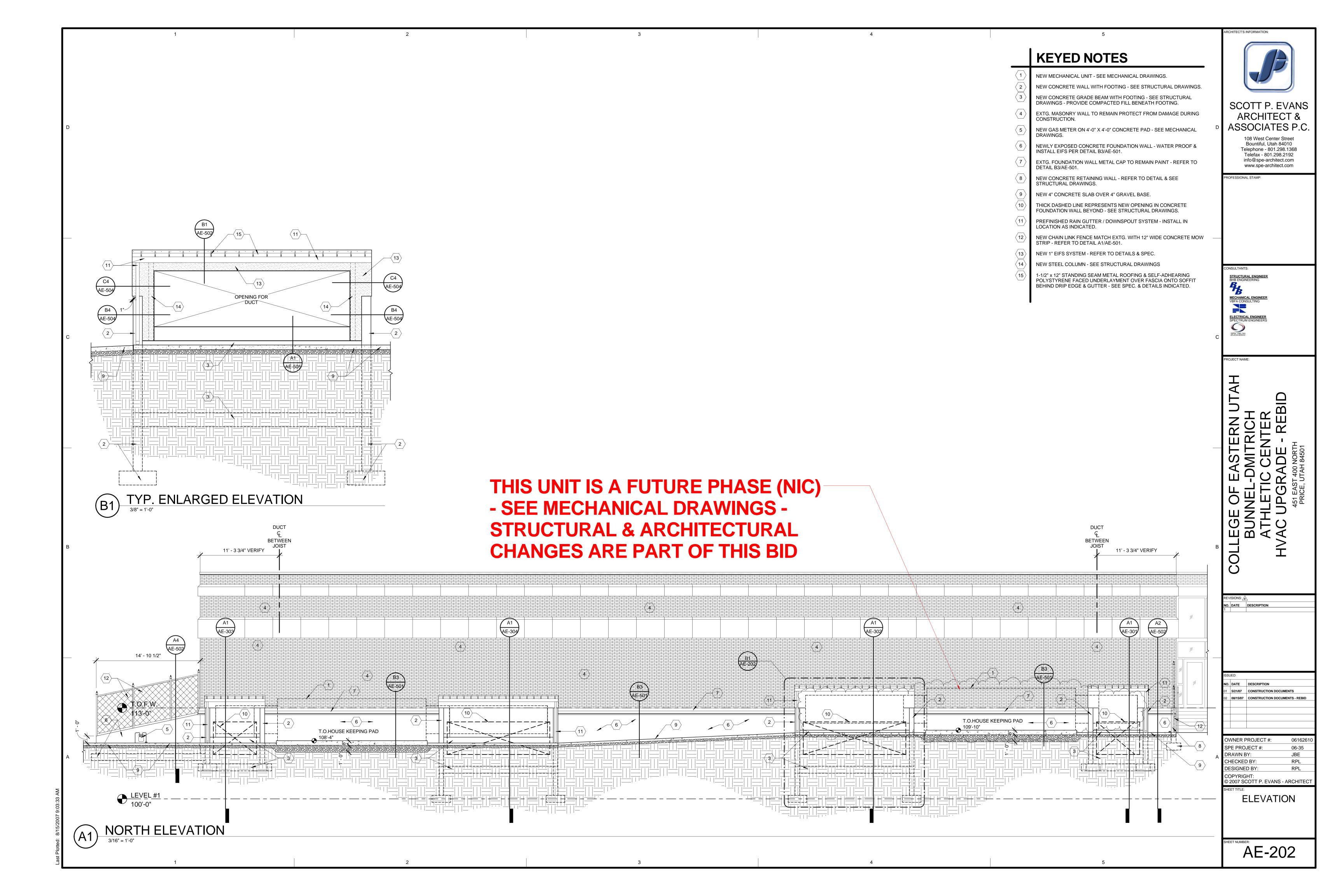
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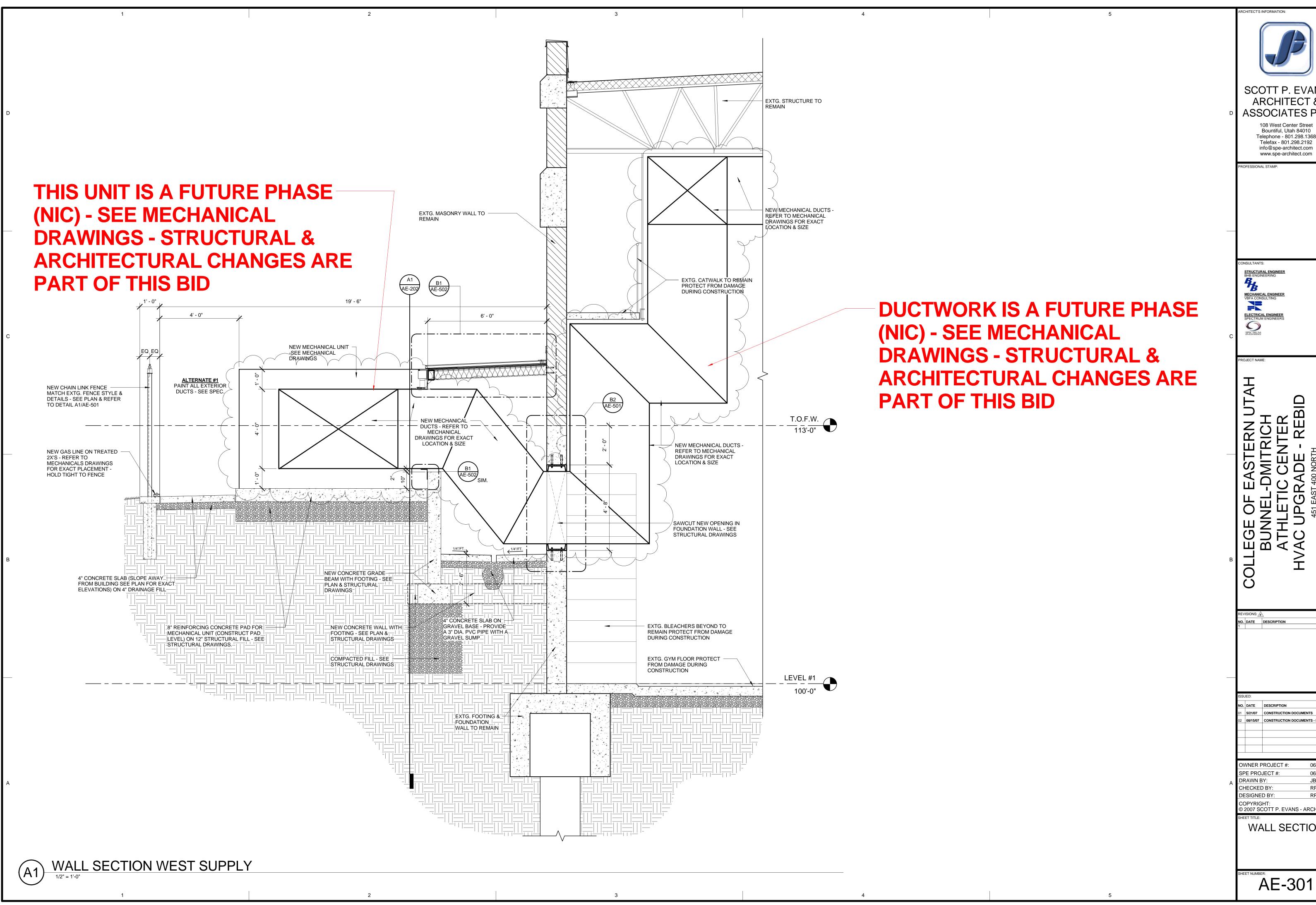
**ENLARGED SITE PLAN** 

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AS-102







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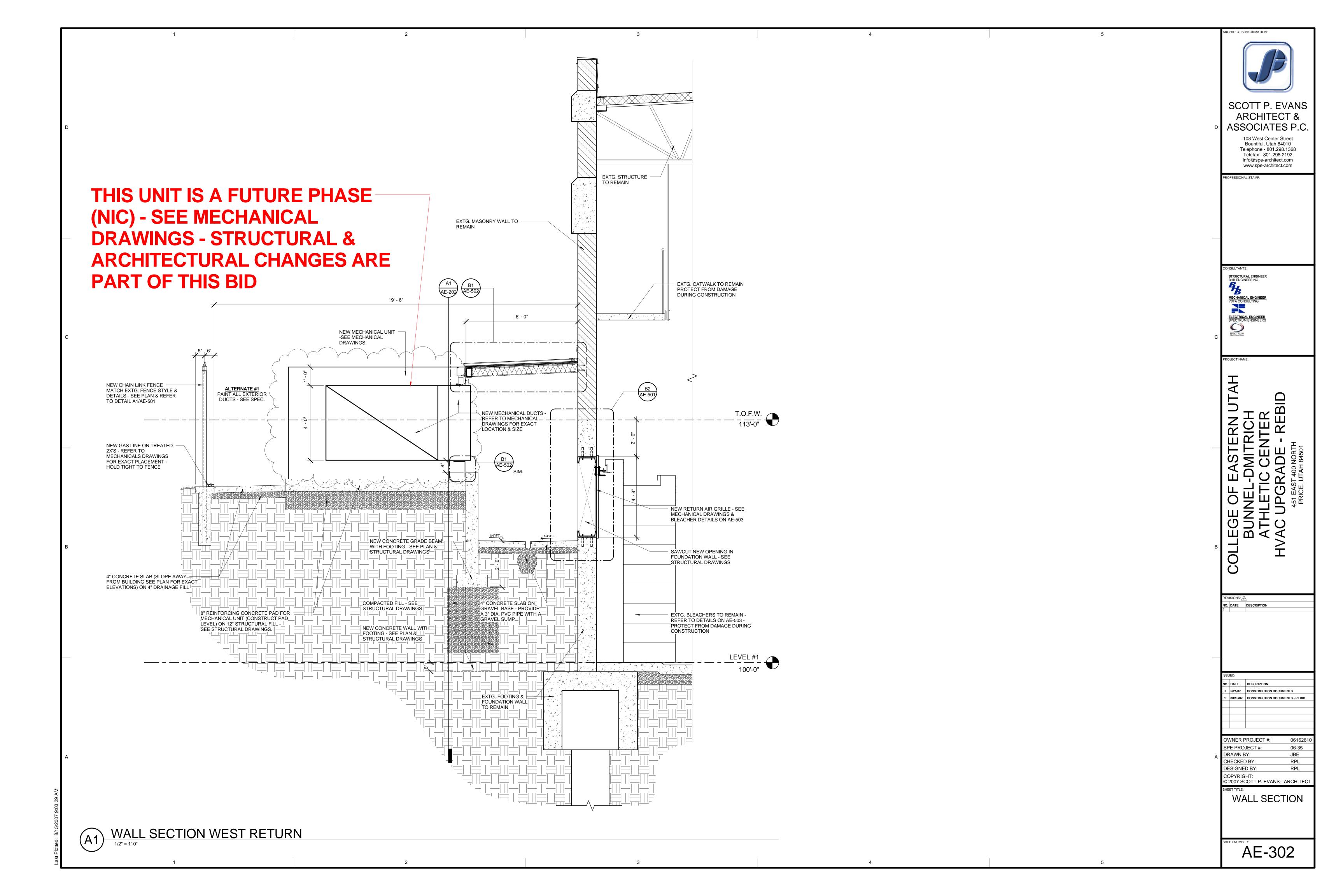
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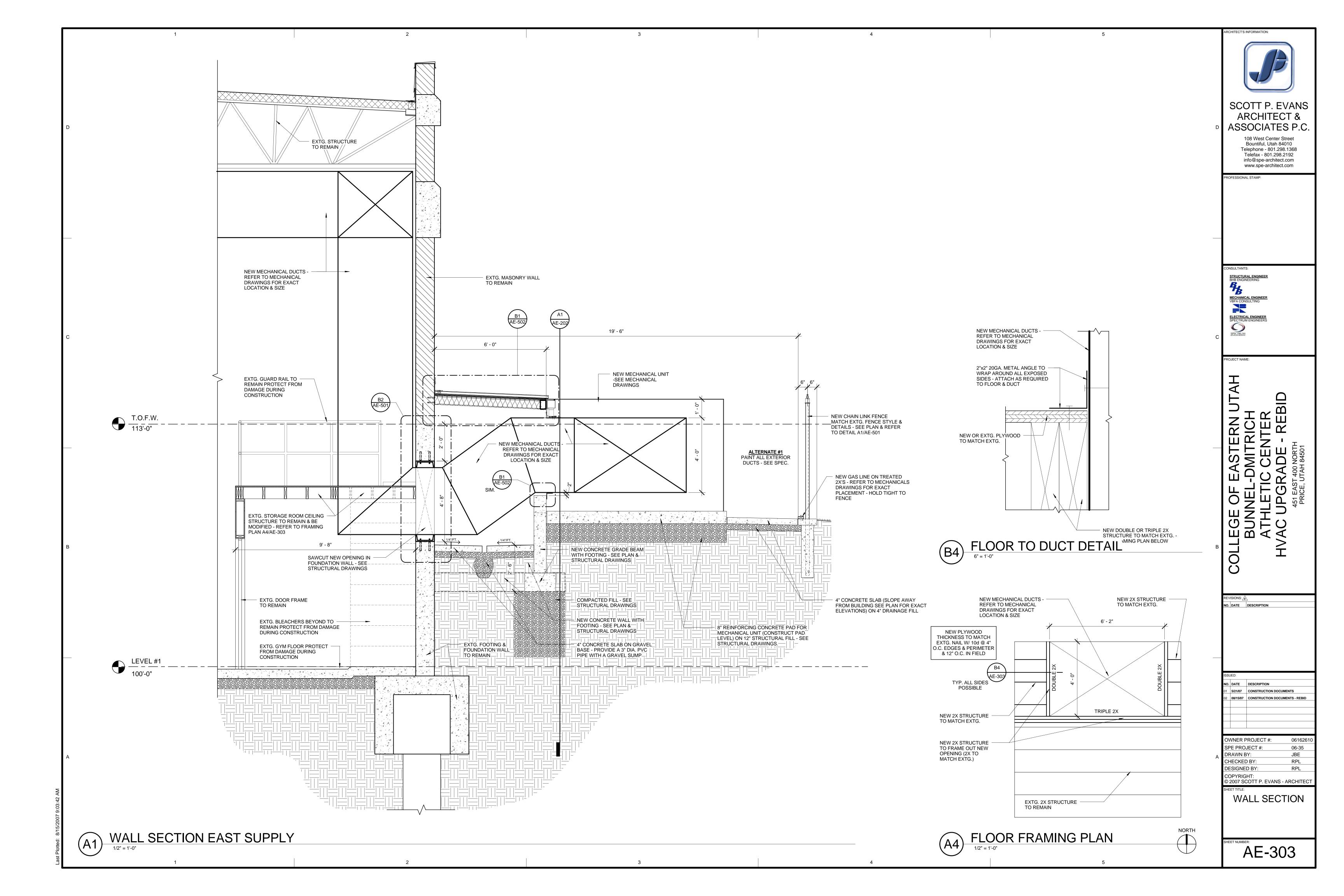
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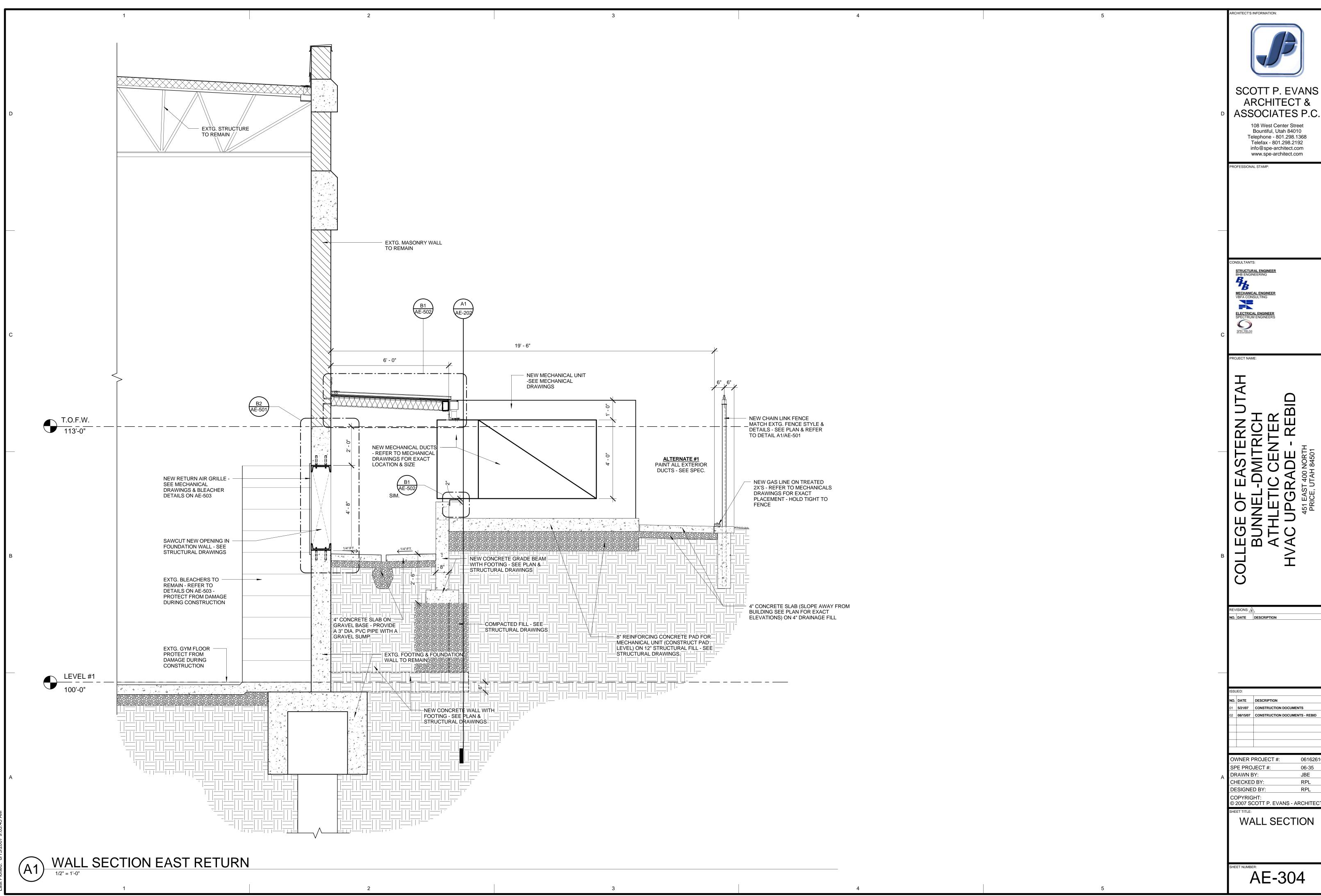
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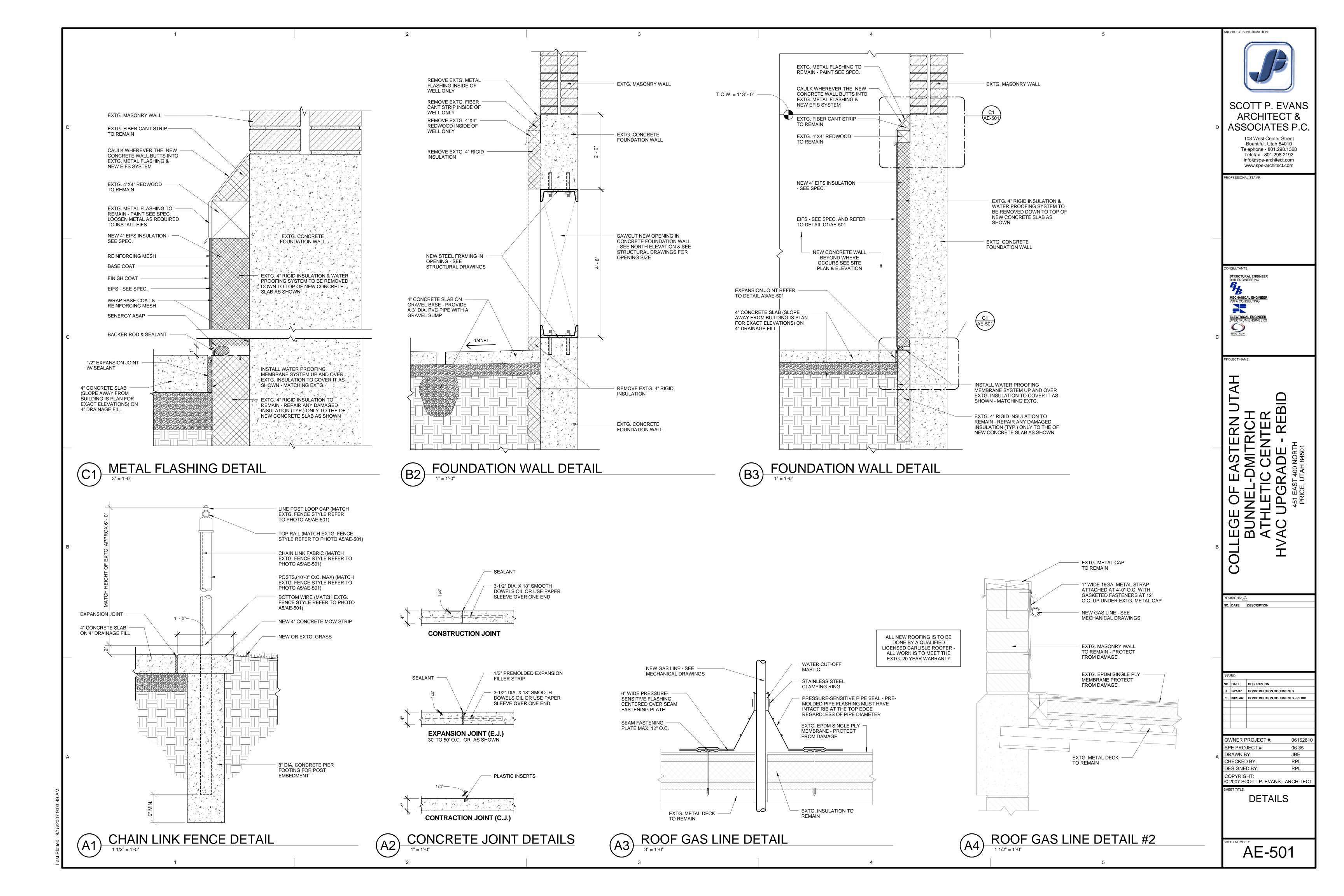
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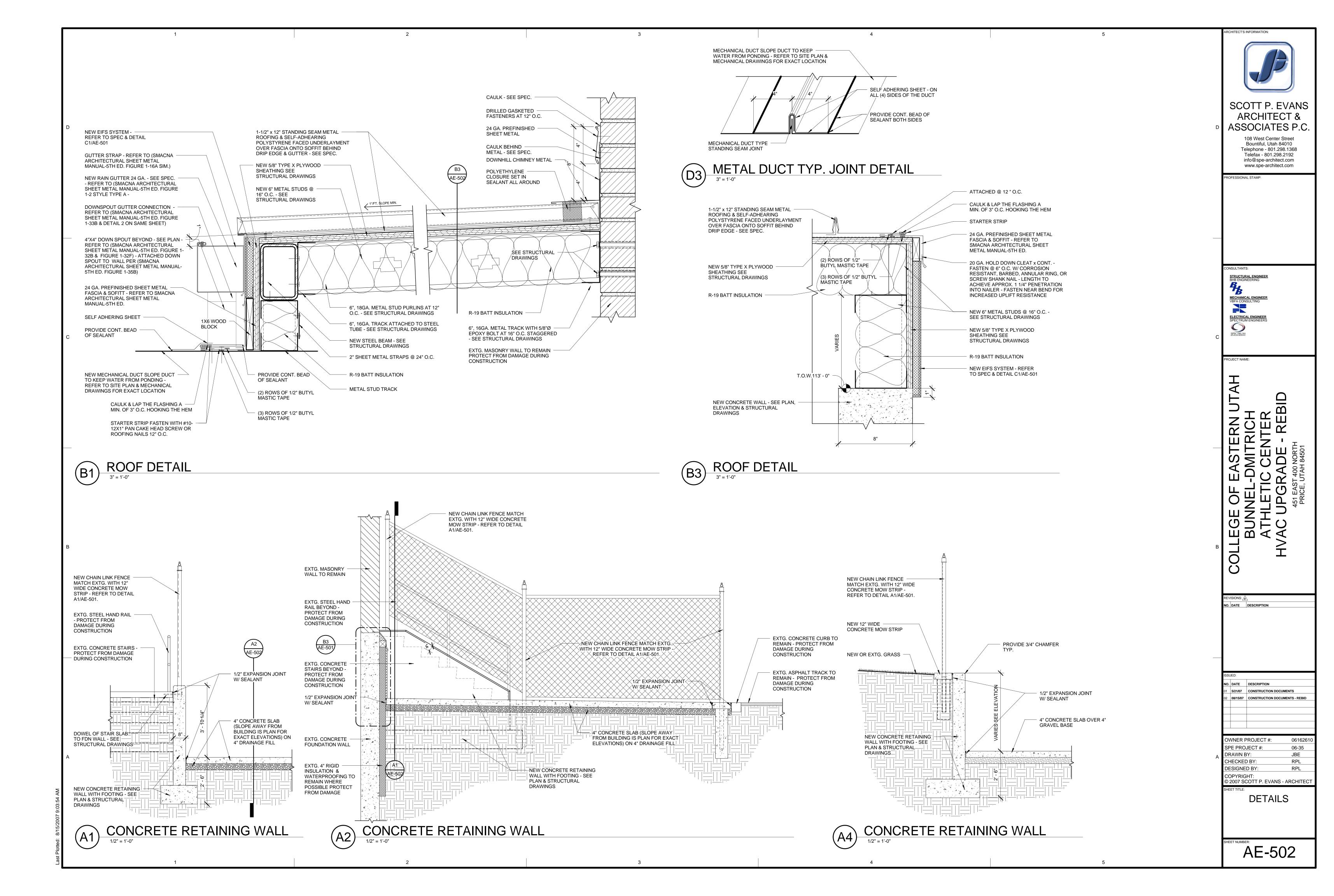
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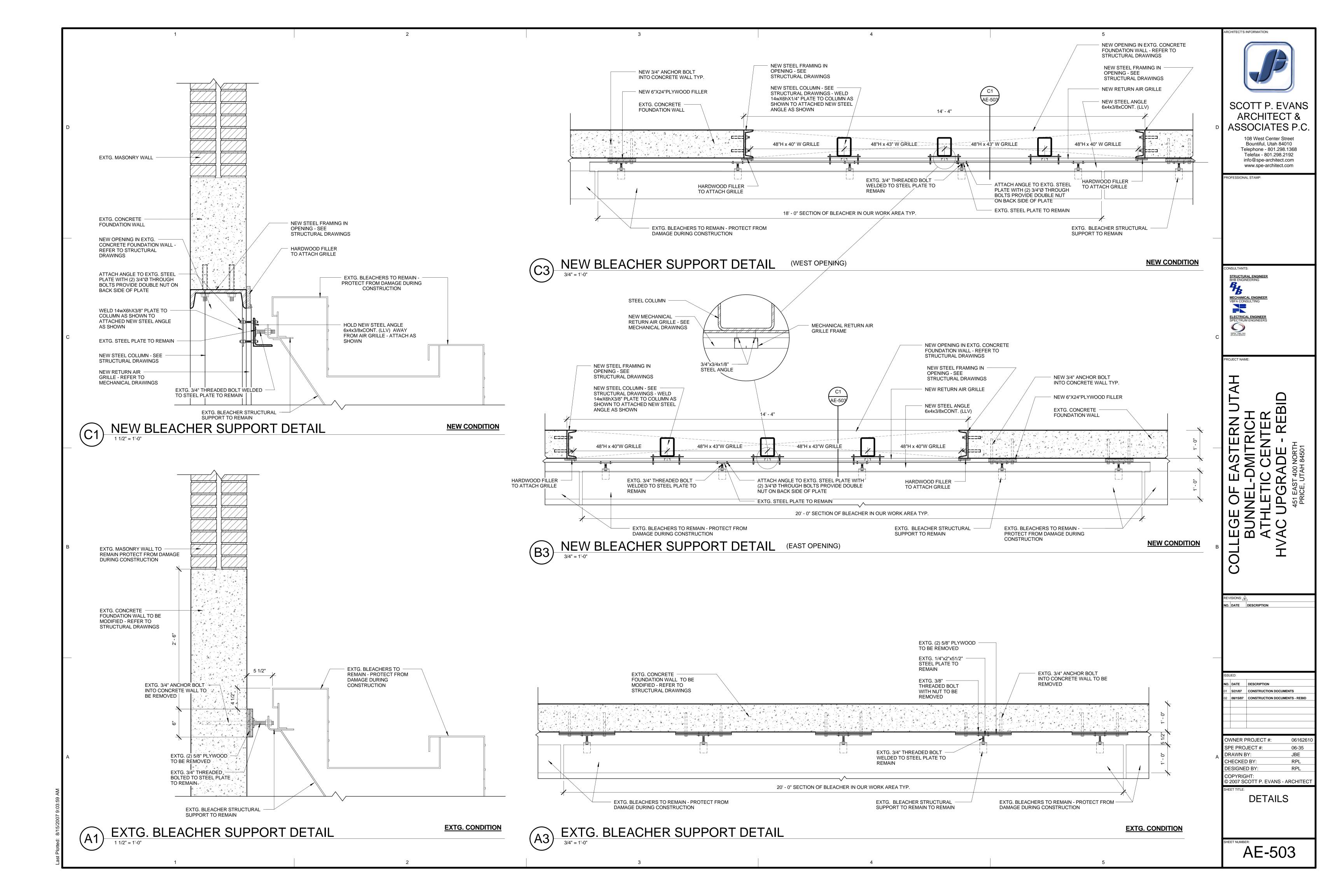


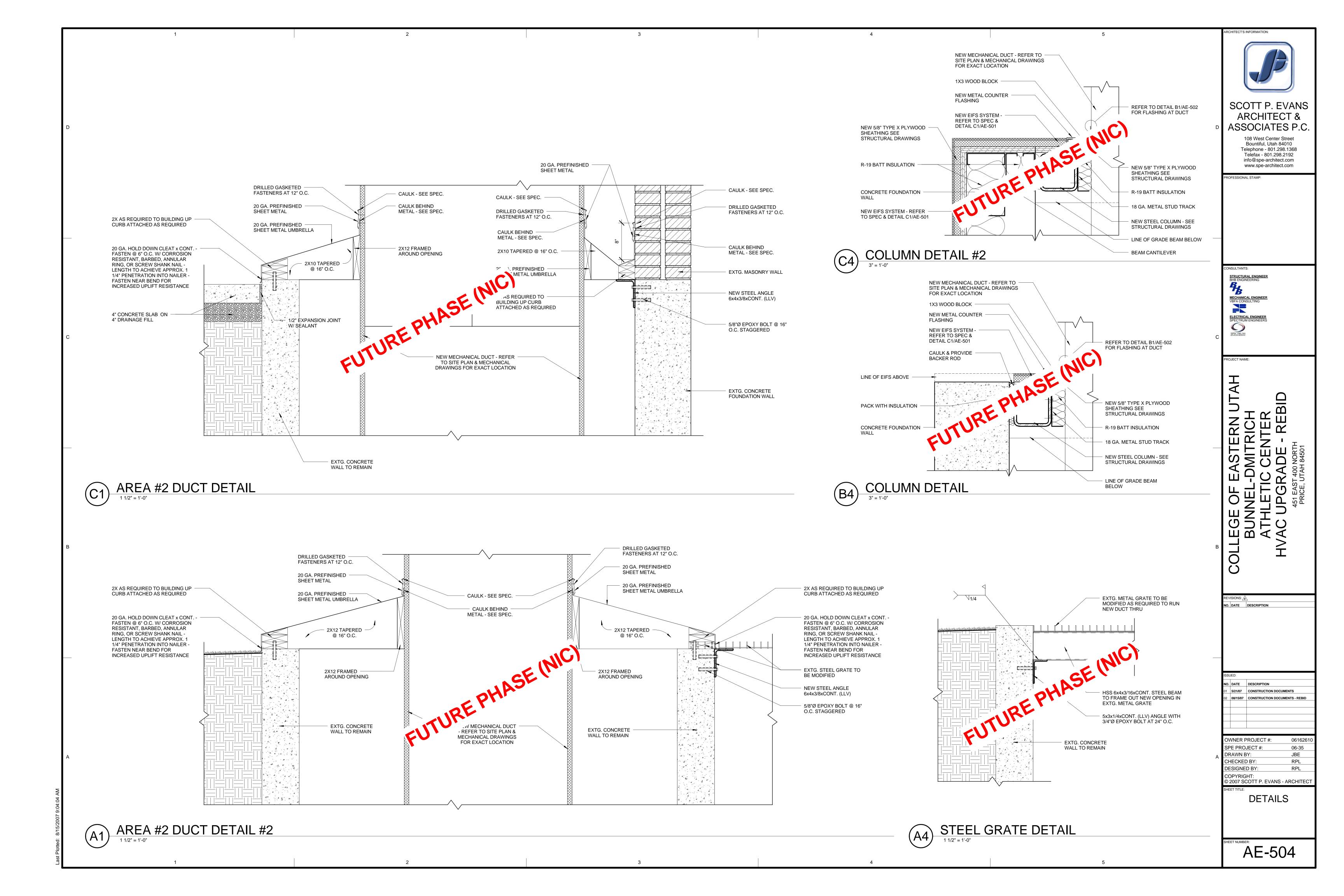


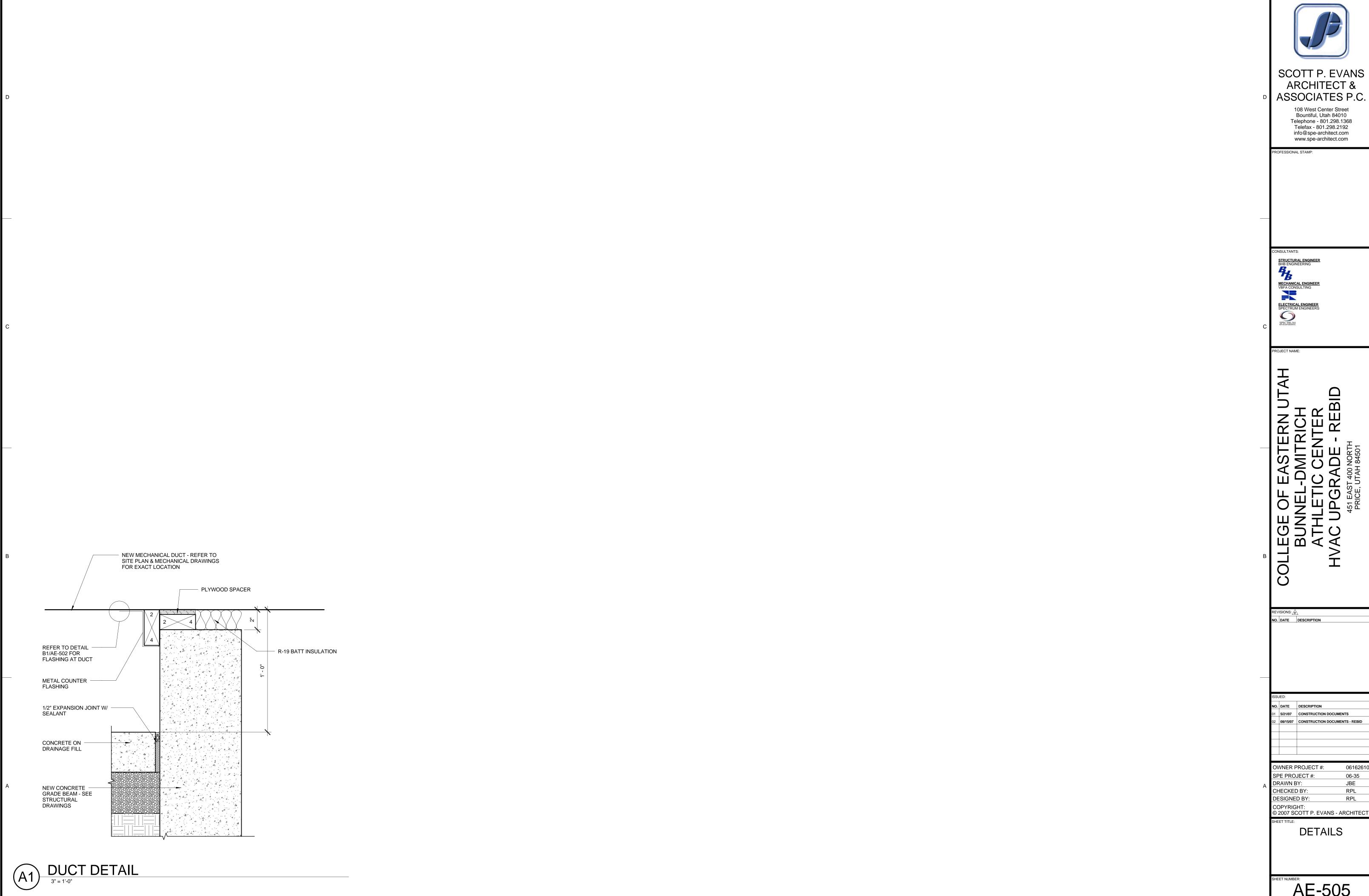








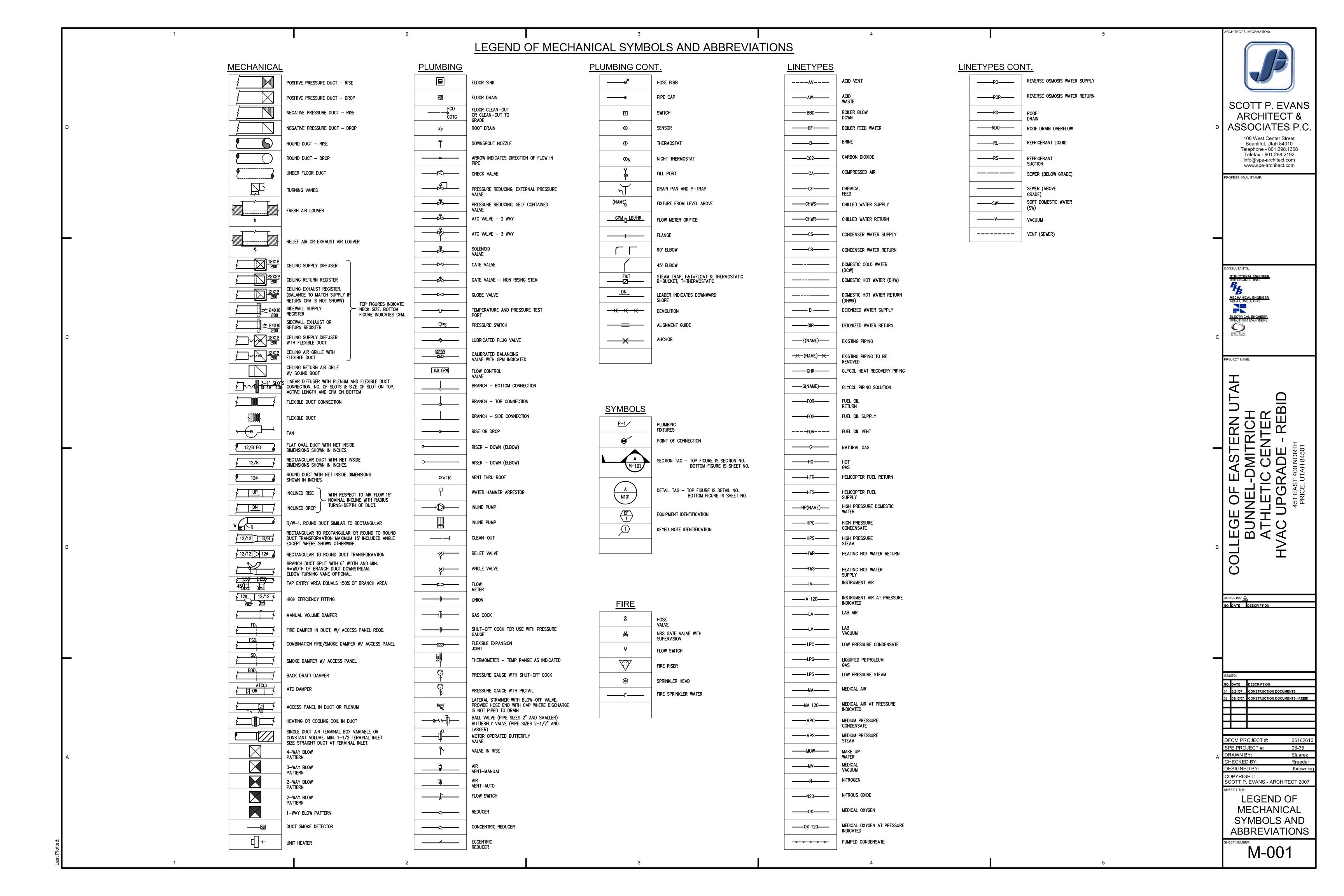


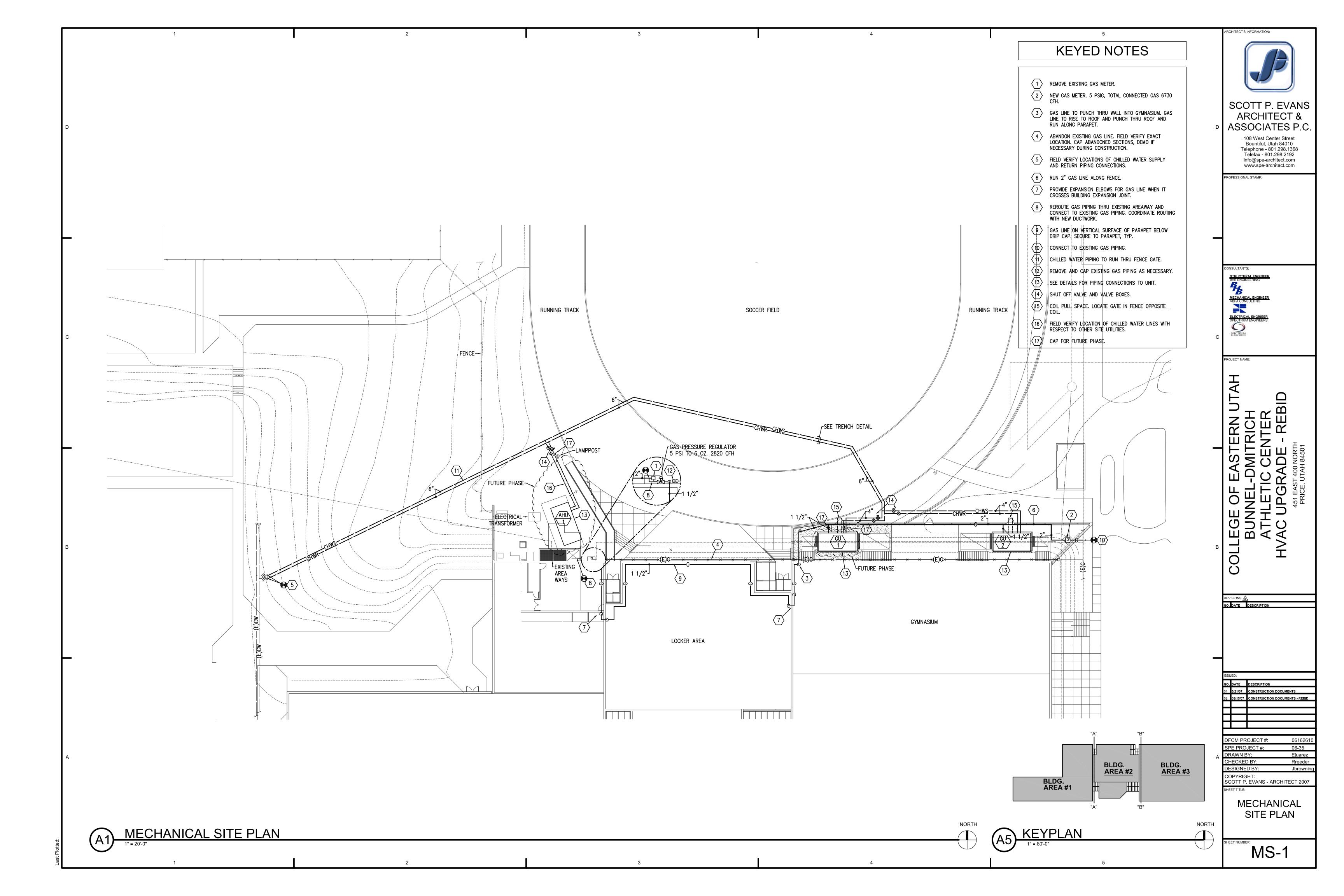


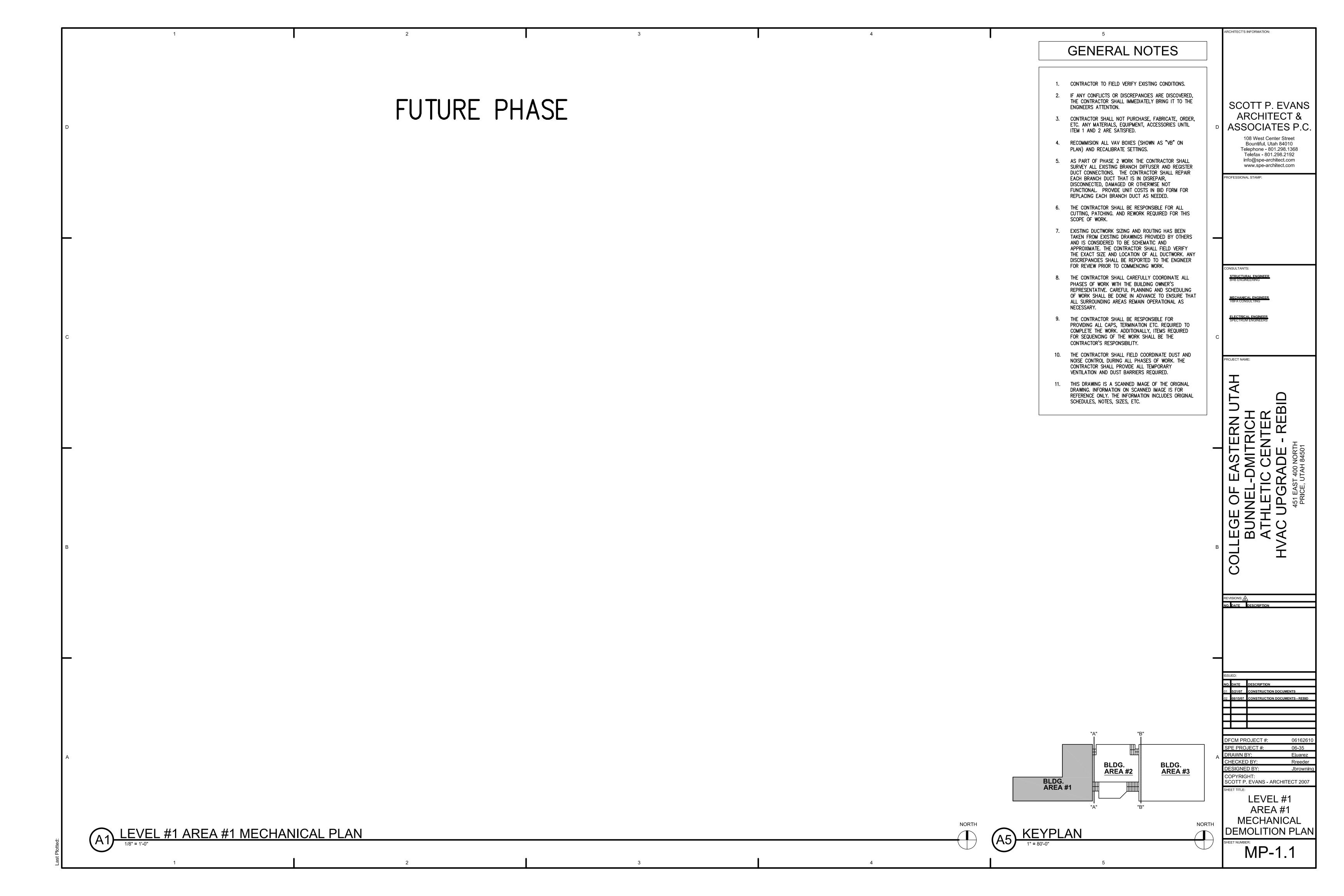
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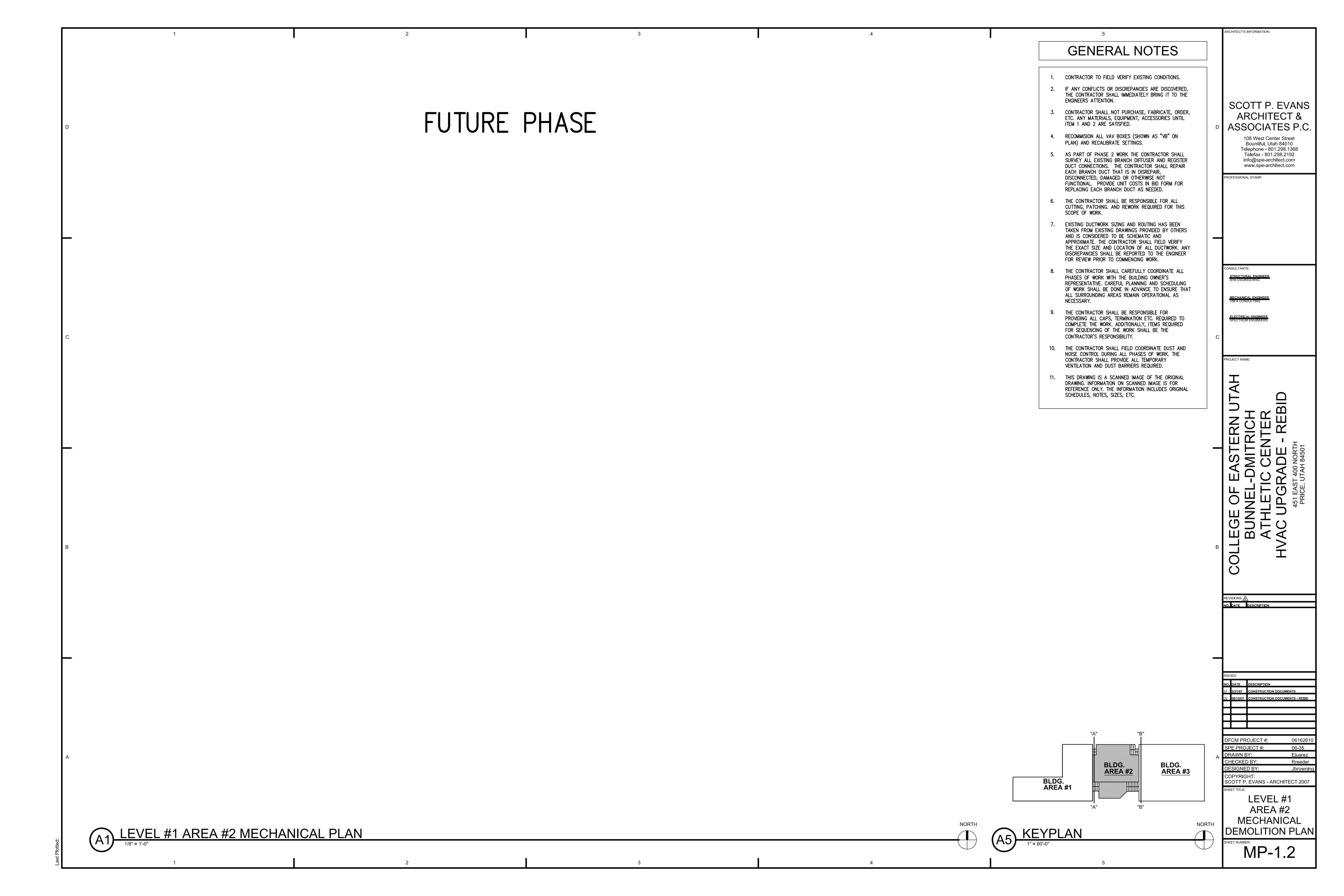
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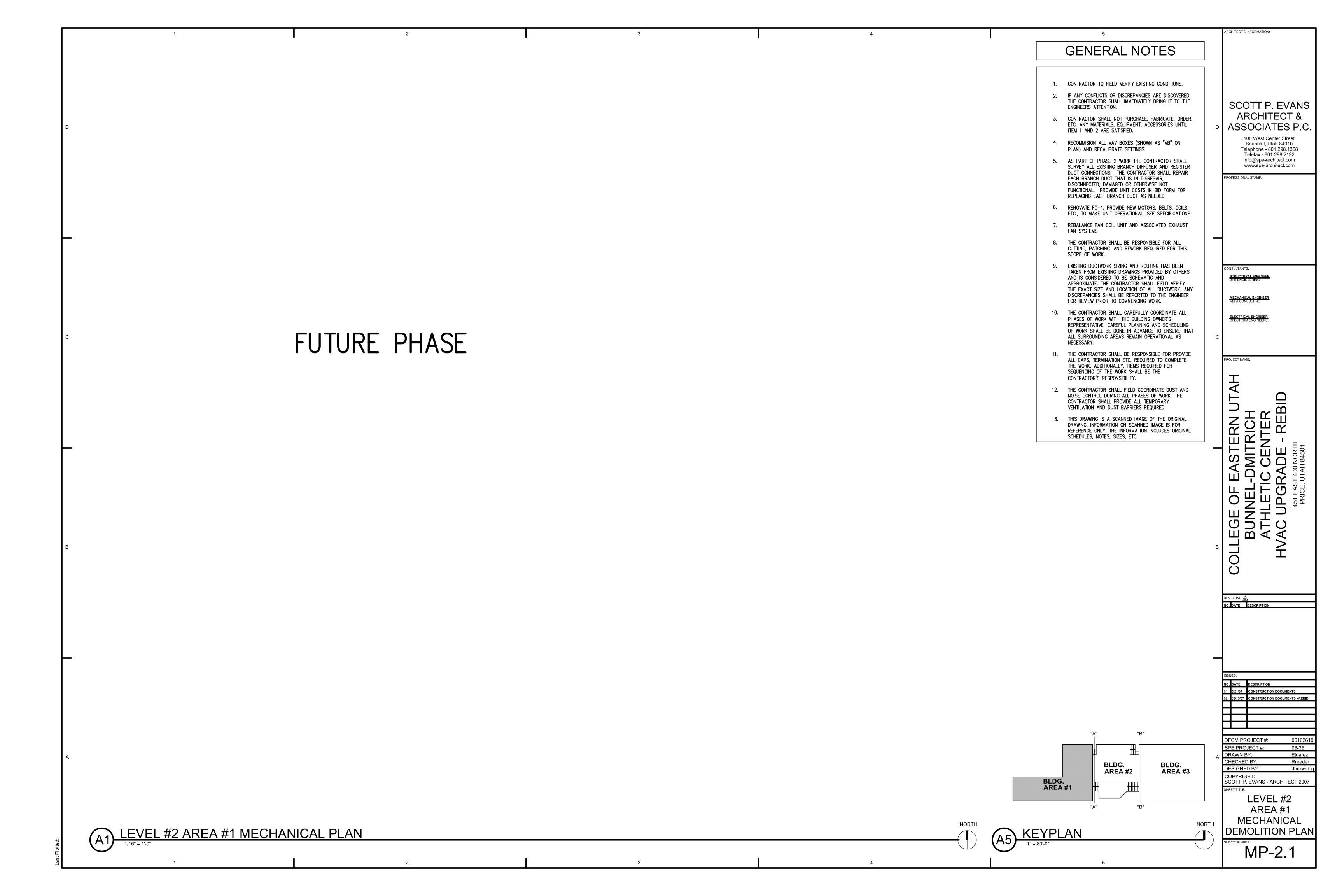
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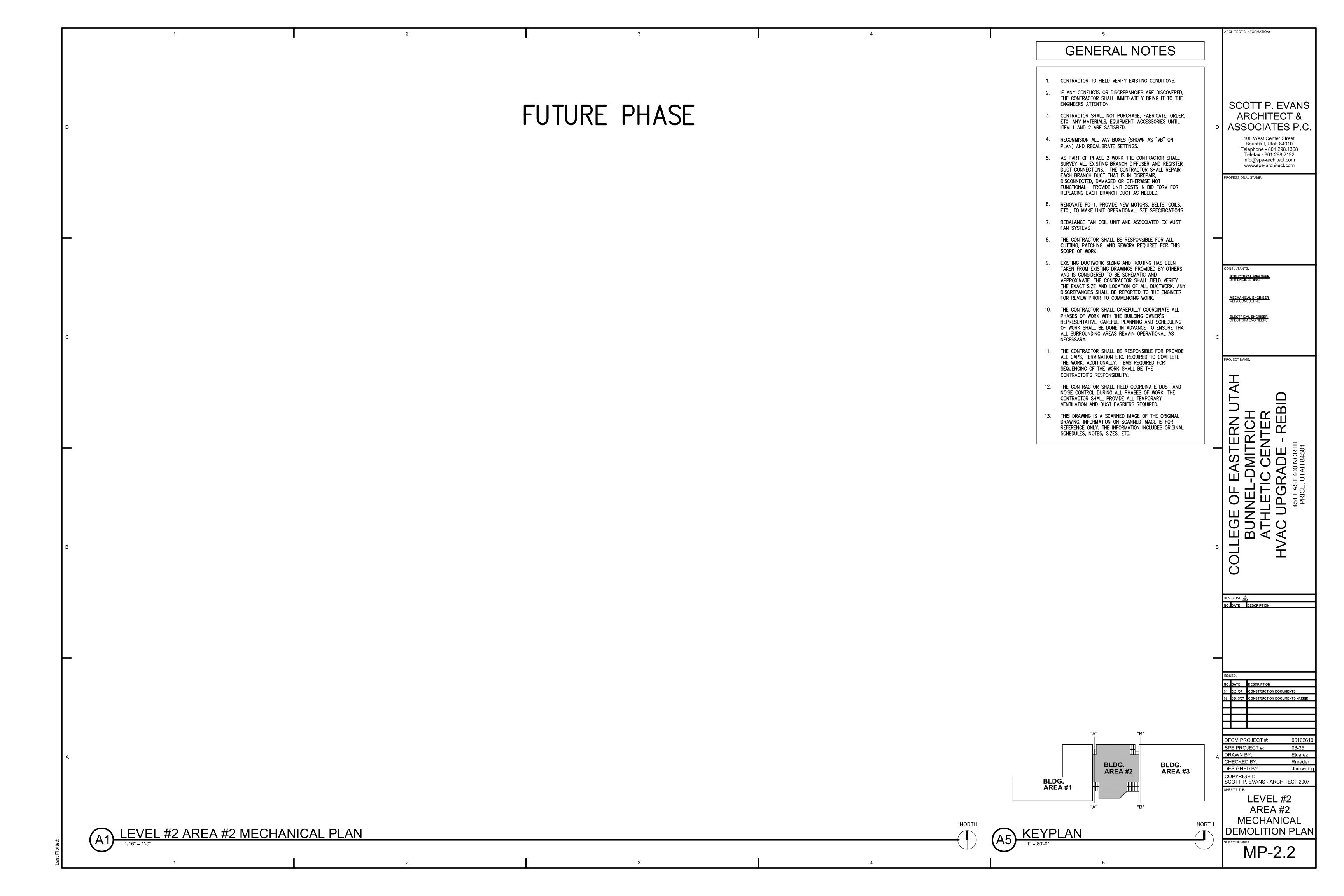


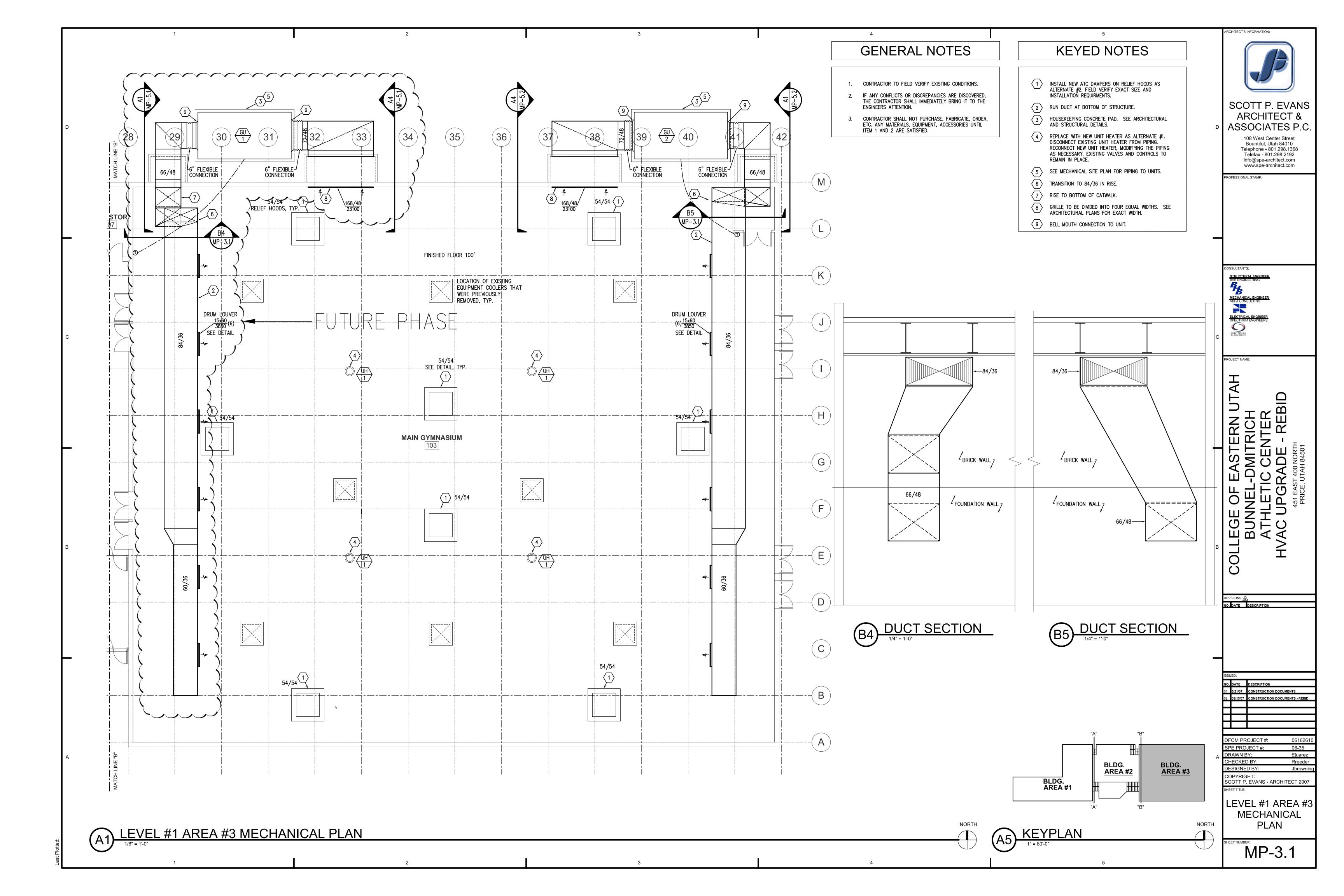


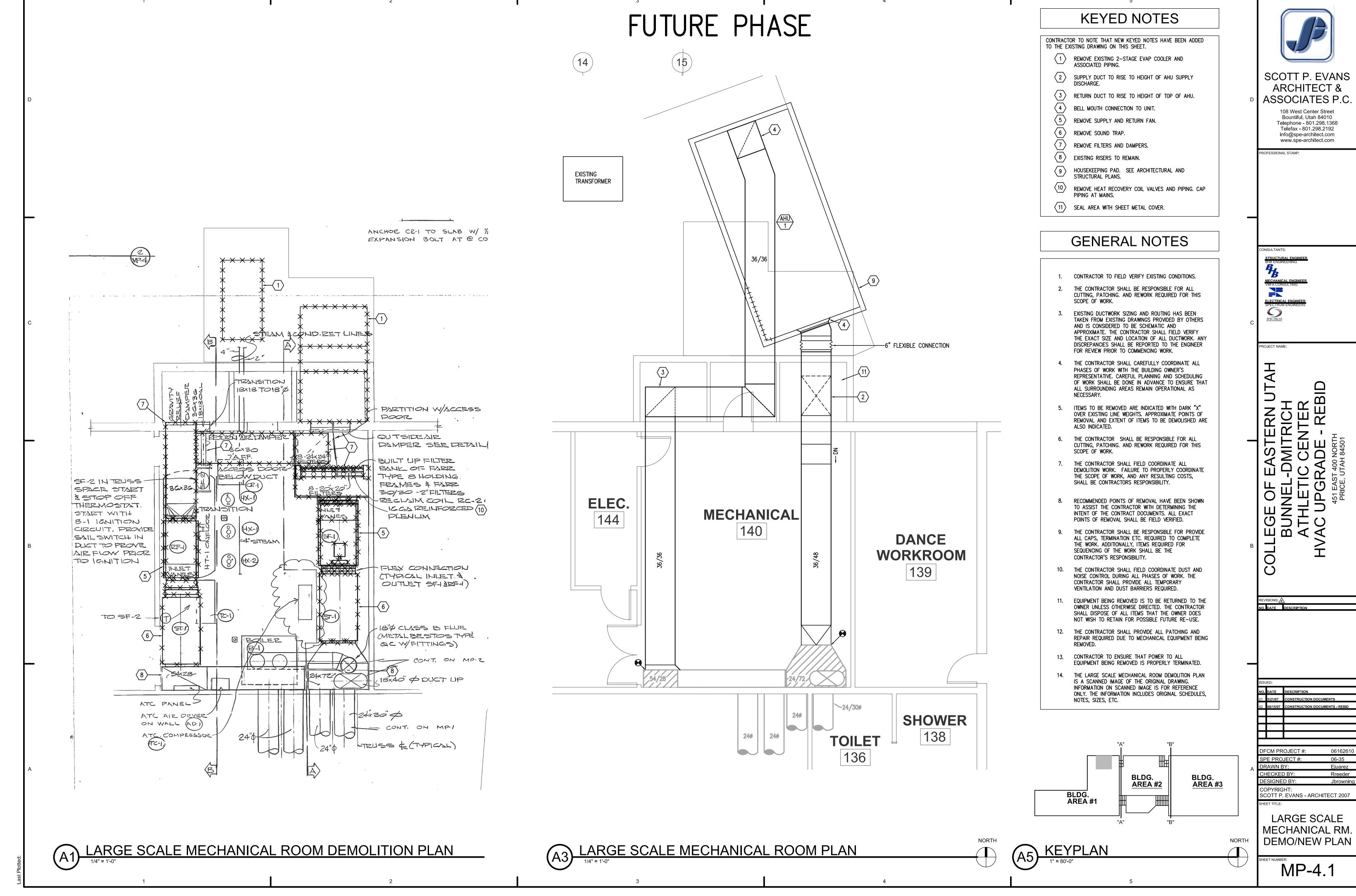




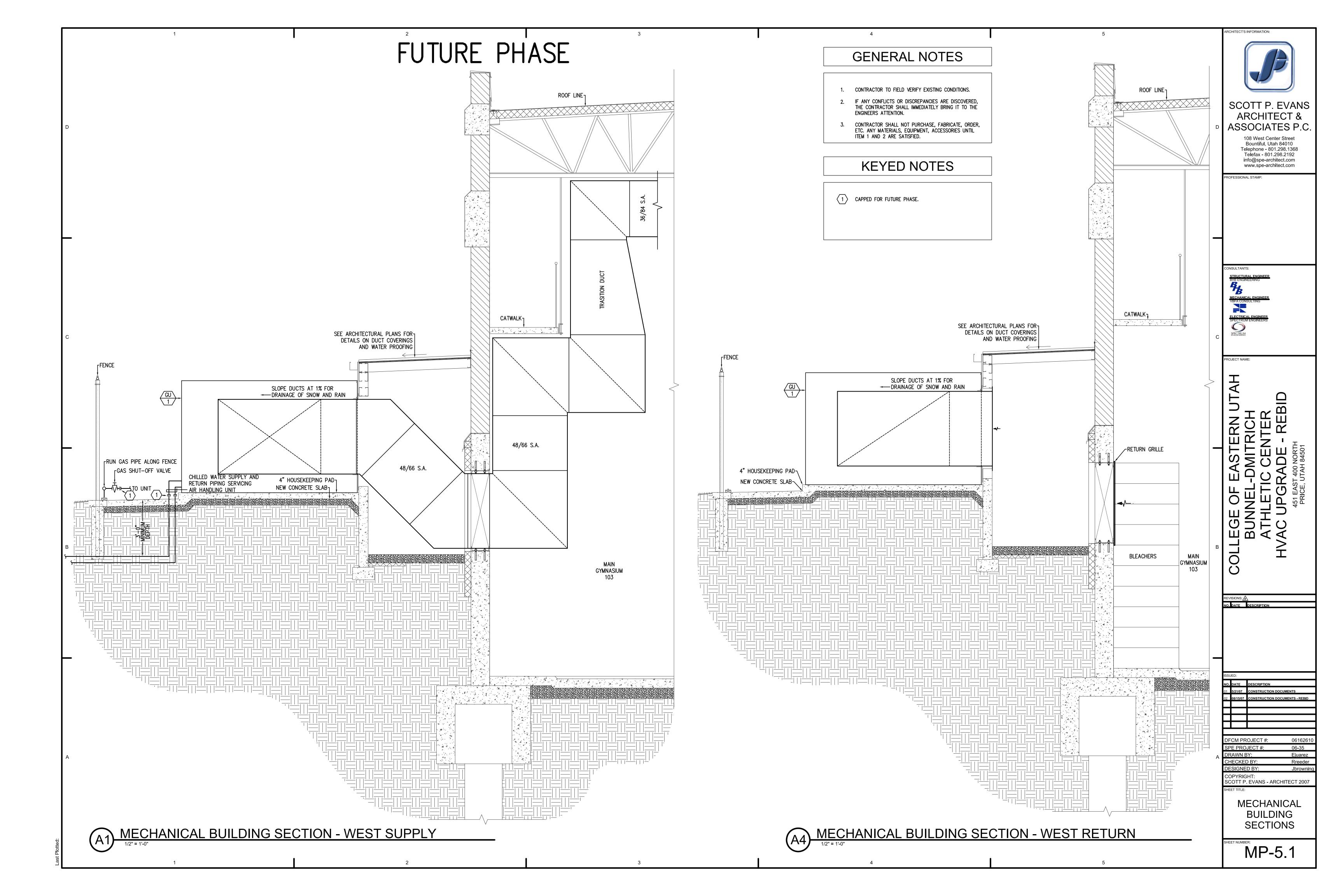


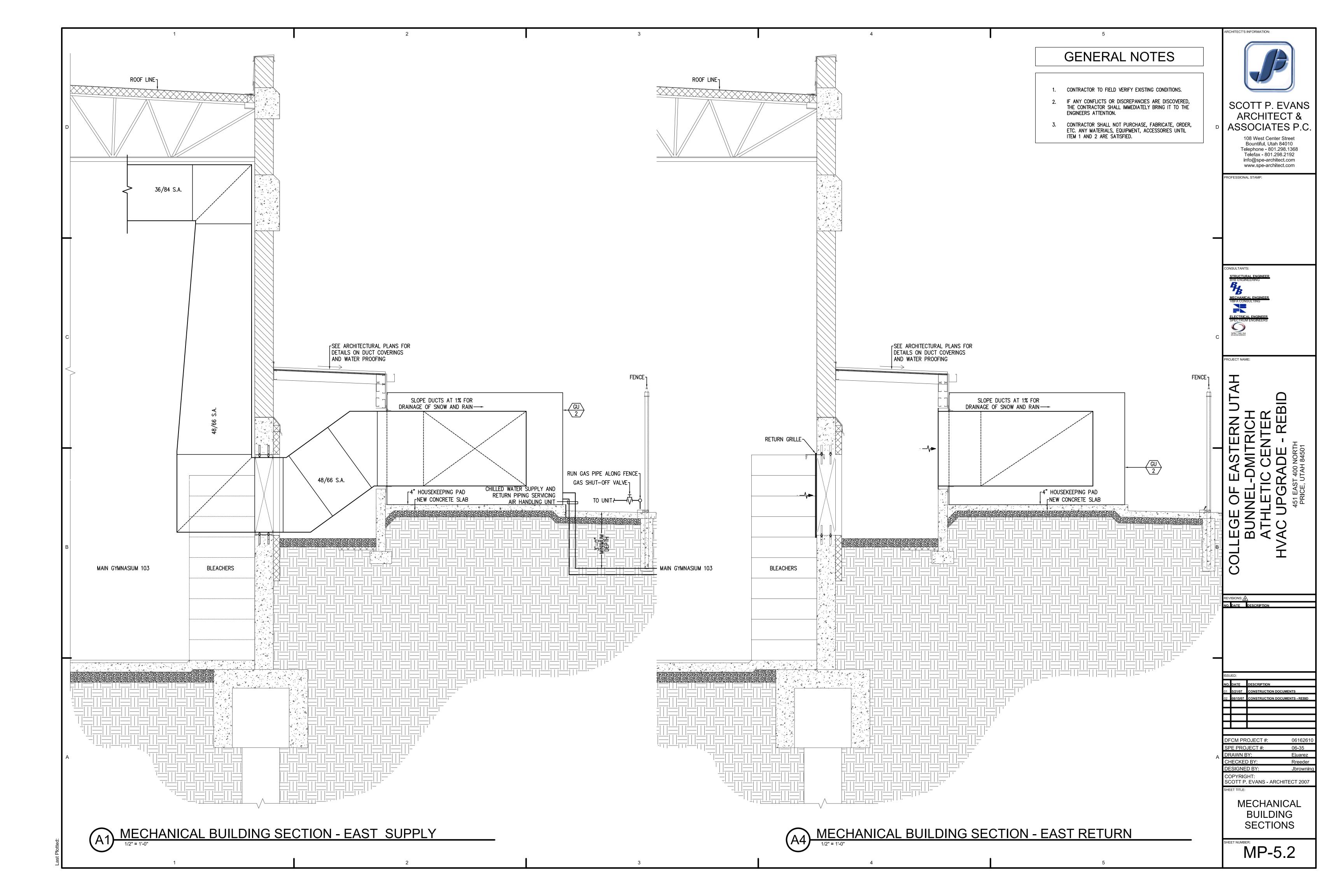


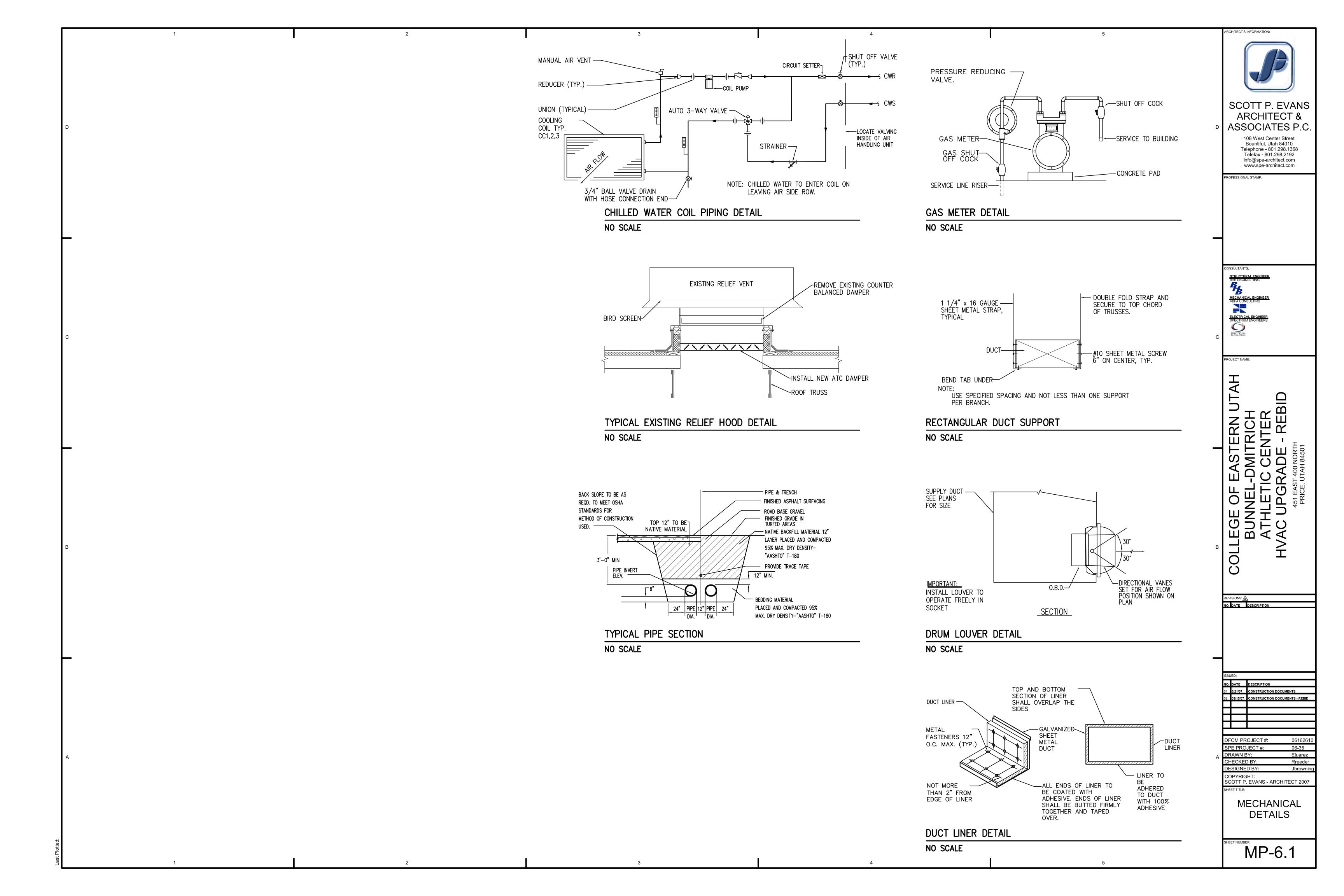


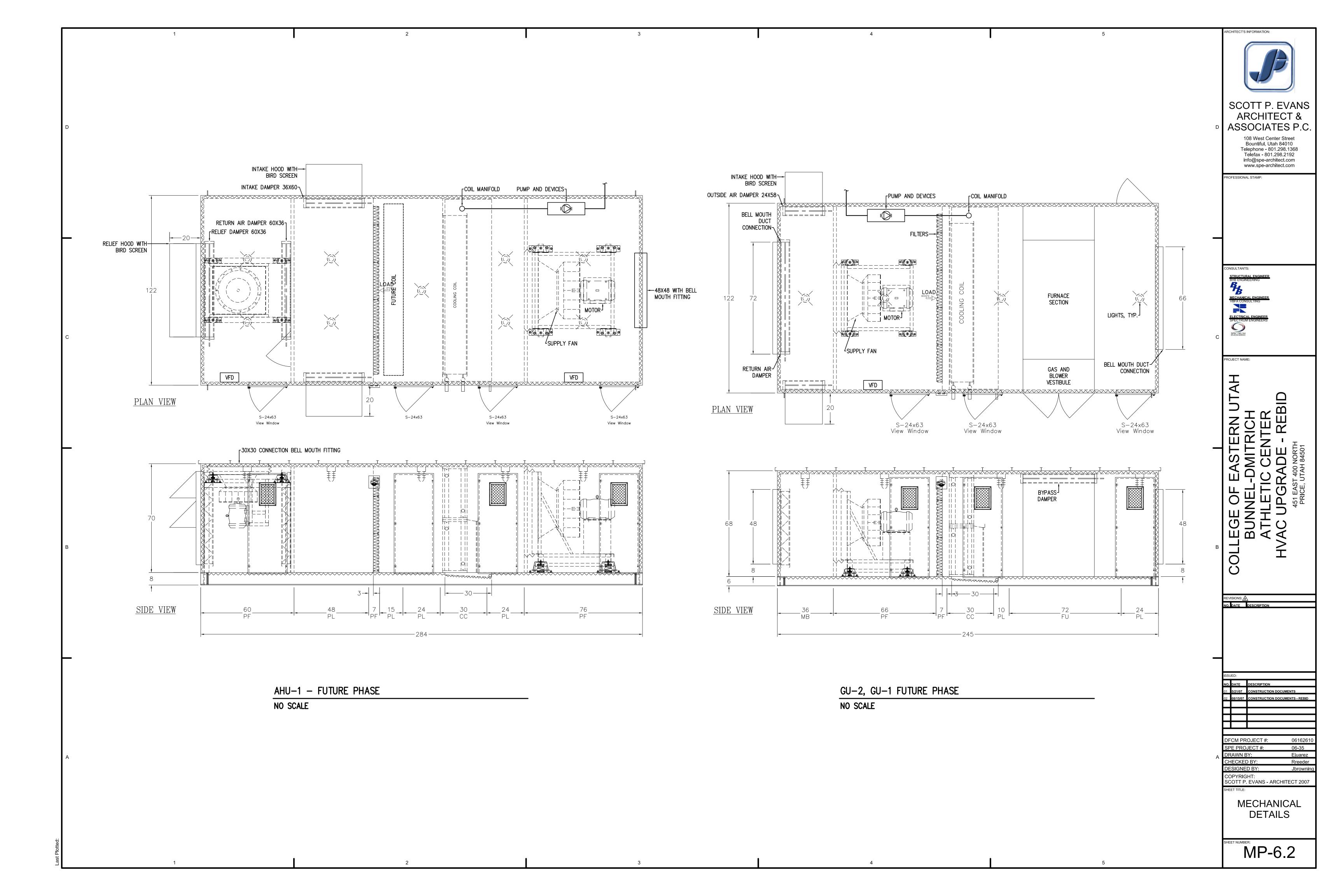


ARCHITECT'S INFORMAT









		AIR	COMPONENTS					ELECTRICAL	PHYSICAL	
		AIR	COMPONENTS					ELECTRICAL	PHISICAL	
		SUPPLY						SINGLE		
		AIRFLOW						POINT	WEIGHT	
ID	MANUFACTURER	(CFM)	FANS	COILS	FURNACE	PUMP	FILTER	VOLT/PH/HZ	(LB)	NOTES
GU-1	Energy Labs	23000	SF-1	CC-1	F-1	P-1	(8)24X24X4" (6)12X24X4"	460/3	11000	FUTURE PHA
GU-2	Energy Labs	23000	SF-2	CC-2	F-2	P-2	(8)24X24X4" (6)12X24X4"	460/3	11000	
AHU-1	Energy Labs	24000	SF-3, RF-3	CC-3	N/A	P-3	(8)24X24X4" (6)12X24X4"	460/3	14000	FUTURE PHA

					FAN SC	HEDUL	E					
				AIR		FAN					ELECTRICAL	
				MAXIMUM			FAN					
	MANUFACTURER			AIRFLOW	STATIC	FAN	WHEEL	MOTOR	MOTOR	MOTOR		
	AND			RATE	PRESSURE	SPEED	DIAMETER	SIZE	BHP	SPEED		
ID	MODEL NUMBER	LOCATION	TYPE	(CFM)	(IN. WATER)	(RPM)	(IN)	(HP)	(HP)	(RPM)	VOLT/PH/HZ	NOTES
SF-1	ENERGY LABS	GU-1	PLENUM	23000	3.5	1780	30	20	19.28	1800	460/3	FUTURE PHASE
SF-2	ENERGY LABS	GU-2	PLENUM	23000	3.5	1780	30	20	19.28	1800	460/3	
SF-3	ENERGY LABS	AHU-1	PLENUM	24000	4.5	1284	36.5	25	24.01	1800	460/3	FUTURE PHASE
RF-3	ENERGY LABS	AHU-1	PLENUM	15000	1.5	1898	24.5	10	8	1800	460/3	FUTURE PHASE

								COIL SO	HEDULE									
				AIR						FLUID				PHYSICAL				
															EACH		MINIMUM	
							ENTERING	LEAVING			ENTERING/				COIL FIN	MINIMUM	NO.	
				AIRFLOW	TOTAL	SENSIBLE	TEMP.	TEMP.	STATIC	FLOW	LEAVING		HEAD		WIDTH/	WATER	ROWS/	
				RATE	LOAD	LOAD	DB/WB	DB/WB	PRESSURE	RATE	TEMP.	WORKING	LOSS	NO.	HEIGHT	VELOCITY	FINS PER	
ID	MANUFACTURER	LOCATION	USAGE	(CFM)	(MBH)	(MBH)	(°F)	(°F)	(IN. WATER)	(GPM)	(°F)	FLUID	(FT)	COILS	(IN)		INCH	NOTES
CC-1	ENERGY LABS	GU-1	COOLING	23000	564	564	83/60	54	1	113	48/63	40% Glyc	23	2	102/30	3.00	10/12	FUTURE PHASE
CC-2	ENERGY LABS	GU-2	COOLING	23000	564	564	83/60	54	1	113	48/63	40% Glyc	23	2	102/30	3.00	10/12	
CC-3	ENERGY LABS	AHU-1	COOLING	24000	580	580	83/60	54.34	1	116	48/63	40% Glyc	23	2	102/31.5	3.00	10/12	FUTURE PHASE

			GA	S FIRED FU	JRNACE SC	HEDULE	<u> </u>	
							ELECTRICAL	
	MANUFACTURER	INPUT	OUTPUT	AIRFLOW	PRESSURE	MAX		
	AND	LOAD	LOAD	RATE	DROP	UNIT		
ID	MODEL NUMBER	(MBH)	(MBH)	(CFM)	(IN H20)	AMPS	VOLT/PH	NOTES
F-1	WEATHER RITE / HE 1500	1,565	1,000	15000	0.75	10	120/1	1,2 FUTURE PHASE
F-2	WEATHER RITE / HE 1500	1,565	1,000	15000	0.75	10	120/1	1,2,3

- 1. CFM AT 65% OF TOTAL UNIT CFM
- 2. CAPACITIES AT JOB SITE ELEVATION

					Р	UMP S	CHEDULE						
				FLUID			PUMP		ELECTRICAL				
	MANUFACTURER			FLOW		HEAD			MOTOR	MOTOR	MOTOR		
	AND			RATE	WORKING	LOSS	EFFICIENCY		SIZE	BHP	SPEED		
ID	SERIES	MODEL	SERVICE	(GPM)	FLUID	(FT OF )	(%)	TYPE	(HP)	(HP)	(RPM)	VOLT/PH/HZ	NOTES
P-1	ARMSTONG 4380	2X2X8	GU-1	113	40% GLYCOL	41	62	INLINE	3	2.1	1750	480/3/1	1, FUTURE PHASE
P-2	ARMSTONG 4380	2X2X8	GU-2	113	40% GLYCOL	41	62	INLINE	3	2.1	1750	480/3/1	1
P-3	ARMSTONG 4380	2X2X8	AHU-1	116	40% GLYCOL	41	62	INLINE	3	2.1	1750	480/3/1	1, FUTURE PHASE

#### 1. POWER FROM AIR HANDLING UNIT

					UN	NIT HE	ATER	SCHED	ULE			
					AIR		FLUID			ELECTRICA	L	
								ENTERING/				
	MANUFACTURER				AIRFLOW		FLOW	LEAVING		MOTOR		
	AND			USE	RATE	LOAD	RATE	TEMP.	WORKING	SIZE		
ID	MODEL NUMBER	LOCATION	TYPE	TYPE	(CFM)	(BTU/H)	(GPM)	(°F)	FLUID	(HP)	VOLT/PH/HZ	NOTES
UH-1	MODINE V/VN-247	Gymnasium	HW	HEATING	4800	188,700	8	200	Water	0.5	208/3/60 (1)	New Unit Heater To Replace Existing

1. Provide a 115/1/60 phase unit heater with an accessory transformer to convert to voltage shown.

			FAN CO	IL SCHEDULI	E - FUTU	RE PHAS	E		
			AIR	FAN		COIL	ELECTRICAL	OTHER	
			MAXIMUM	EXTERNAL					
			AIRFLOW	STATIC	MOTOR				
			RATE	PRESSURE	SIZE	LOAD			
ID	LOCATION	TYPE	(CFM)	(IN. WATER)	(HP)	(BTU/H)	VOLT/PH/HZ	FLOW	NOTES
FC-1	Women's Locker	Heating Coil	4000	0.5	1	127,000	208/3/	24 GPM @ 5.8 CHW	1
FC-1	Men's Team Room	Heating Coil	4000	0.5	1	127,000	208/3/	24 GPM @ 5.8 CHW	1

<sup>1.</sup> DATA IS FROM ORIGINAL SCHEDULE. FIELD VERIFY ALL REPLACEMENT PARTS.



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PROFESSIONAL STAMP:

COLLEGE OF EASTERN UTAH
BUNNEL-DMITRICH
ATHLETIC CENTER
HVAC UPGRADE - REBID

NO. DATE DESCRIPTION

SPE PROJECT #: 06-35 CHECKED BY: DESIGNED BY:

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SCHEDULES

MP-7.1

	SYMBOL LEGEND
SYMBOL	DESCRIPTION
REFERENC	E AND LINE SYMBOLS
A5 E-501	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-501 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
A5 E-201	ELEVATION OR SECTION INDICATOR, EXTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
A5 E-201	ELEVATION OR SECTION INDICATOR, INTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
100	ROOM OR SPACE NUMBER.
1	KEYNOTE INDICATOR.
	REVISION INDICATOR.
(CU-1)	EQUIPMENT INDICATOR.
	BREAK, STRAIGHT: TO BREAK PARTS OF DRAWING.
	BREAK, ROUND.
MATCH_LINE	MATCH LINE INDICATOR: CENTER, EXTRA WIDE LINE.
	NEW LINE: MEDIUM LINE.
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE.
	EXISTING TO REMAIN LINE: THIN LINE.
	DEMOLITION LINE: DASHED, MEDIUM LINE.
 WIRING ME	
WIRING ME	
———— WIRING ME ————————————————————————————————————	WIRING.
	WIRING.  BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.
A-1,3,5	WIRING.  BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.  BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. NUMBER IN BOX REFERS TO THE CONDUCTOR AND CONDUIT SCHEDULE. FOR BRANCH WIRING USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.  WIRING AND/OR RACEWAY: THIN LINE. WHERE "X" = :
A-1,3,5	WIRING.  BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.  BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. NUMBER IN BOX REFERS TO THE CONDUCTOR AND CONDUIT SCHEDULE. FOR BRANCH WIRING USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.
A-1,3,5  A-1,3,5	WIRING.  BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.  BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. NUMBER IN BOX REFERS TO THE CONDUCTOR AND CONDUIT SCHEDULE. FOR BRANCH WIRING USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.  WIRING AND/OR RACEWAY: THIN LINE. WHERE "X" = :  CATV = CABLE TELEVISION
A-1,3,5  A-1,3,5	WIRING.  BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.  BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. NUMBER IN BOX REFERS TO THE CONDUCTOR AND CONDUIT SCHEDULE. FOR BRANCH WIRING USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.  WIRING AND/OR RACEWAY: THIN LINE. WHERE "X" = :  CATV = CABLE TELEVISION NC = NURSE CALL CCTV = CLOSED CIRCUIT P = POWER TELEVISION RC = RIGID CONDUIT FA = FIRE ALARM S = SOUND TO = FIBER OPTICS T = TELEPHONE T TELEVISION TO = TELEPHONE T TELEVISION TO = TELE
A-1,3,5  A-1,3,5	WIRING.  BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.  BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. NUMBER IN BOX REFERS TO THE CONDUCTOR AND CONDUIT SCHEDULE. FOR BRANCH WIRING USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.  WIRING AND/OR RACEWAY: THIN LINE. WHERE "X" =:  CATV = CABLE TELEVISION NC = NURSE CALL CONTROL OF TELEVISION RC = RIGID CONDUIT FA = FIRE ALARM S = SOUND TO THE SHALL BE SIZED AS SHOWN AND/OR SPECIFIED.

	SYMBOL LEGEND							
SYMBOL	DESCRIPTION							
ELECTRIC	AL POWER AND DISTRIBUTION							
	DISCONNECT, FUSED (ONE-LINE DIAGRAM).							
	DISCONNECT WITH FUSE AND MOTOR STARTER COMBINATION (ONE-LINE DIAGRAM).							
5	OVERLOAD RELAY (ONE-LINE DIAGRAM).							
<u> </u>	STARTER (ONE-LINE DIAGRAM).							
<u> </u>	CIRCUIT BREAKER, MOLDED CASE (ONE-LINE DIAGRAM).							
$\bigcirc$	MOTOR.							
ď	DISCONNECT SWITCH, FUSED.							
다	DISCONNECT SWITCH, UNFUSED.							
<b>X</b>	STARTER, COMBINATION WITH DISCONNECT SWITCH.							
×	STARTER OR MOTOR CONTROLLER.							
<u> </u>	PANELBOARD CABINET, FLUSH MOUNTED.							
71111	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.							
yuuuuun	PANELBOARD CABINET, SURFACE MOUNTED, 2 SECTION.							
DP#	DISTRIBUTION PANEL OR SWITCHBOARD.							
LP	LIGHTING RELAY, CONTACTOR PANEL, OR DIMMING ENCLOSURE.							
\$ST	SWITCH, TOGGLE MOTOR STARTER WITH OVERLOAD PROTECTION.							
75	TRANSFORMER: NUMBER INDICATES kVA.							
FIRE ALA	.RM							
FCP	FIRE ALARM CONTROL PANEL, SEMI-RECESSED.							
СМ	CONTROL MODULE.							
R	SHUT DOWN RELAY: INSTALL RELAY IN CONTROL CIRCU OF EQUIPMENT TO BE CONTROLLED IN THE EVENT OF A FIRE.							
<u></u>	DETECTOR, SMOKE, DUCT WITH HOUSING AND SAMPLING TUBE.							
WIRING D	EVICES							
₩₽	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WEATHERPROOF: NEMA 5-20R.							

 $\bigoplus_{WP}$  INTERRUPTER, WEATHERPROOF: NEMA 5-20R.

MARK	ITEM DESCRIPTION	LOAD DATA			WIRE AND CONDUIT SIZE	OVERCURRENT PROTECTION							NOTES N	MARK						
		HP	kW	MCA	FLA	VOLT	PH	Hz	(CC-INDICATES			DISC	ONNECT SV	/ITCH		CIR	CUIT BREAKE	ER .		
									CONDUCTOR AND	FURN	SWITCH	NEMA	FUSED	FUSE	FUSE	СВ	PANEL	RATING		
									CONDUIT SCHEDULE)	BY	TYPE	RATING	SWITCH	RATING	CLASS					
AHU-1	AIR HANDLER (FUTURE NIC)			61.3	52.8	480	3	60	CC#17	E	100/3	3R	YES	70A		80/3		HACR	1	AHU-
GU-1	GYM AIR HANDLER (FUTURE)			40.6	33.8	480	3	60	CC#11	E	60/3	3R	YES	45A		50/3		HACR	1	GU-
GU-2	GYM AIR HANDLER			40.6	33.8	480	3	60	CC#11	E	60/3	3R	YES	45A		50/3		HACR	1	GU-2
UH-1	UNIT HEATER (4 TOTAL)	1/2				208	3	60	EXISTING	E	EXISTING					EXIST		HACR	1,2	UH-1

JUNCTION BOX.

RECONNECTION OF NEW UNIT TO BE PROVIDED UNDER ADD ALTERNATE #2. EXISTING DISCONNECT, CONDUIT AND CONDUCTORS TO BE REUSED.

# ABBREVIATIONS

	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	., , , , ,	J
	NOTE: ALL ABBREVIATION	ONS MAY	NOT BE USED.
1P	SINGLE POLE	KV	KILOVOLT
1PH 1WAY	SINGLE-PHASE ONE-WAY	KVA kVAR	KILOVOLT AMPERE KILOVOLT AMPERE
2/C 2WAY	TWO-CONDUCTOR TWO-WAY	kW	REACTIVE KILOWATT
3/C	THREE-CONDUCTOR	kWh LED	KILOWATT HOUR LIGHT EMITTING DIODE
3PH 3WAY	THREE-PHASE THREE-WAY	LFMC	LIQUID TIGHT FLEXIBLE
40UT	QUADRUPLE RECEPTACLE OUTLET	LFNC	METAL CONDUIT LIQUID TIGHT FLEXIBLE
4PDT	FOUR-POLE DOUBLE THROW	LPS	NONMETALLIC CONDUIT LOW PRESSURE SODIUM
4PST	FOUR-POLE SINGLE	LRA	LOCKED ROTOR AMPS
4W	THROW FOUR-WIRE	LTG LV	LIGHTING LOW VOLTAGE
4WAY A	FOUR-WAY ABOVE COUNTER	MATV	MASTER ANTENNA TELEVISION SYSTEM
AC	ARMORED CABLE	MAX MC	MAXIMUM METAL CLAD
ADA	AMERICANS WITH DISABILITIES ACT	MCA	MINIMUM CIRCUIT AMPS
ADJ AFF	ADJACENT ABOVE FINISHED FLOOR	MCB MCC	MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER
AFG AIC	ABOVE FINISHED GRADE AMPERE INTERRUPTING	МСР	MOTOR CIRCUIT PROTECTION
	CAPACITY	MDP	MAIN DISTRIBUTION
ALUM AMP	ALUMINUM AMPERE	MG	PANEL MOTOR GENERATOR
ANN AP	ANNUNCIATOR ACCESS POINT	MH MIN	MANHOLE MINIMUM
	(WIRELESS DATA)	MLO MOCP	MAIN LUGS ONLY MAXIMUM OVERCURRENT
AR ASC	AS REQUIRED AMPS SHORT CIRCUIT		PROTECTION
ATS	AUTOMATIC TRANSFER SWITCH	NA NC	NOT APPLICABLE NORMALLY CLOSED
AV AWG	AUDIO VISUAL AMERICAN WIRE GAGE	NEC	NATIONAL ELECTRICAL CODE
	BUCK-BOOST	NEMA	NATIONAL ELECTRICAL
С	TRANSFORMER CEILING MOUNTED		MANUFACTURERS ASSOCIATION
CATV	COMMUNITY ANTENNA TELEVISION	NFC NFPA	NATIONAL FIRE CODE NATIONAL FIRE
CB CCBA	CIRCUIT BREAKER CUSTOM COLOR AS	NIC	PROTECTION ASSOCIATION NOT IN CONTRACT
	SELECTED BY ARCHITECT	NL	NIGHT LIGHT
CCTV	CLOSED CIRCUIT TELEVISION	NO NTS	NORMALLY OPEN NOT TO SCALE
CFBA	CUSTOM FINISH AS SELECTED BY ARCHITECT	OCP	ON CENTER OVER CURRENT
CF/CI	CONTRACTOR FURNISHED/	OF/CI	PROTECTION OWNER FURNISHED/
CF/OI	CONTRACTOR INSTALLED CONTRACTOR FURNISHED/	•	CONTRACTOR INSTALLED
CKT	OWNER INSTALLED CIRCUIT	OF/OI	OWNER FURNISHED/ OWNER INSTALLED
CM CND	CONSTRUCTION MANAGER CONDUIT	OFP OH DR	OBTAIN FROM PLANS OVERHEAD (COILING)
CO	CONVENIENCE OUTLET	OL	DOOR OVERLOAD
COR	CONTRACTING OFFICER'S REPRESENTATIVE	PB	PUSHBUTTON
CP CT	CONTROL PANEL CURRENT TRANSFORMER	PF PH	POWER FACTOR PHASE
CTV CU	CABLE TELEVISION COPPER	PNL PT	PANEL POTENTIAL TRANSFORME
dBA	UNIT OF SOUND LEVEL	PTZ	PAN/TILT/ZOOM
DPDT	DOUBLE POLE DOUBLE THROW	QTY R	QUANTITY REMOVE
DS EA	DISCONNECT SWITCH EACH	RCP RMC	REFLECTED CEILING PLAN RIGID METAL CONDUIT
EM EMT	EMERGENCY ELECTRICAL METALLIC	RNC	RIGID NONMETALLIC CONDUIT
	TUBING	RPM	REVOLUTIONS PER MINUT
ENT	ELECTRICAL NONMETALLIC TUBING	RR SCA	REMOVE AND RELOCATE SHORT CIRCUIT AMPS
EPO EQUIP	EMERGENCY POWER OFF EQUIPMENT	SCBA	STANDARD COLOR AS SELECTED BY ARCHITECT
EX F	EXISTING FURNITURE MOUNTED	SF SFBA	SQUARE FOOT (FEET) STANDARD FINISH AS
FA	FIRE ALARM		SELECTED BY ARCHITECT
FCP	FIRE ALARM CONTROL PANEL	SPDT	SINGLE POLE, DOUBLE THROW
FLA FMC	FULL LOAD AMPS FLEXIBLE METALCONDUIT	SPEC SPST	SPECIFICATION SINGLE POLE, SINGLE
FOB FVNR	FREIGHT ON BOARD	S/S	THROW START/STOP
	FULL VOLTAGE NON-REVERSING	ST	SINGLE THROW
FVR G	FULL VOLTAGE REVERSING GROUND	SWBD SWGR	SWITCHBOARD SWITCHGEAR
GEN GFCI	GENERATOR GROUND FAULT CIRCUIT	TL TP	TWIST LOCK TELEPHONE POLE
	INTERRUPTER	TP TTB	TWISTED PAIR TELEPHONE TERMINAL
GFP	GROUND FAULT PROTECTION		BOARD
HD HID	HEAVY DUTY HIGH INTENSITY	TV TVSS	TELEVISION TRANSIENT VOLTAGE
HOA	DISCHARGE HAND-OFF-AUTOMATIC	TYP	SURGE SUPPRESSER TYPICAL
HP	HORSE POWER	UF	UNDERFLOOR
HPF HPS	HIGH POWER FACTOR HIGH PRESSURE SODIUM	UGND UPS	UNDERGROUND UNINTERRUPTIBLE POWER
HV HZ	HIGH VOLTAGE HERTZ	V	SUPPLY VOLTS
IG	ISOLATED GROUND	VA VFC	VOLT AMPERE VARIABLE FREQUENCY
IMC	INTERMEDIATE METAL CONDUIT		CONTROLLER
IN/IS I/O	INSULATED/ISOLATED INPUT/OUTPUT	W/ W/O	WITH WITHOUT
IR .I—BOX	INFRARED	WP XFMR	WEATHERPROOF TRANSFORMER

# EQUIPMENT SCHEDULE KEY

XFMR TRANSFORMER

E	DIVISION 16
Q	FURNISHED WITH THE EQUIPMENT
*	COORDINATE WITH THE DIVISION 15 TEMPERATURE
	CONTROL INSTALLER
**	AUTOMATIC CONTROL WIRING BY DIVISION 15

J-BOX JUNCTION BOX

# GENERAL ELECTRICAL NOTES

- CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.
- 2. OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.
- 2.A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.
- 2.B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.
- 2.C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE. THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.
- 3. EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.
- 4. SUBMITTALS: PROVIDE SUBMITTALS IN THREE RING BINDERS WITH JOB NAME, SUBCONTRACTOR, AND VOLUME ON THE BINDING. PREPARE TABS FOR EACH SPECIFICATION SECTION REQUIRING SUBMITTALS. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH
- REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.

#### **DEFINITIONS**

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS,

# ELECTRICAL SHEET INDEX

SHEET NO	SHEET TITLE
EE-001	SYMBOL LEGEND, SHEET INDEX & SCHEDULES
EE-002	ONE-LINE DIAGRAMS
ED-101	LEVEL #1 AREA #1 DEMOLITION PLAN
EP-101	LEVEL #1 AREA #1 POWER PLAN
EP-102	LEVEL #1 AREA #2 POWER PLAN
EP-103	LEVEL #1 AREA #3 POWER PLAN

HITECT'S INFORMATION:



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1 5/21/07 CONSTRUCTION DOCUMENTS 02 08/15/07 CONSTRUCTION DOCUMENTS - REBID

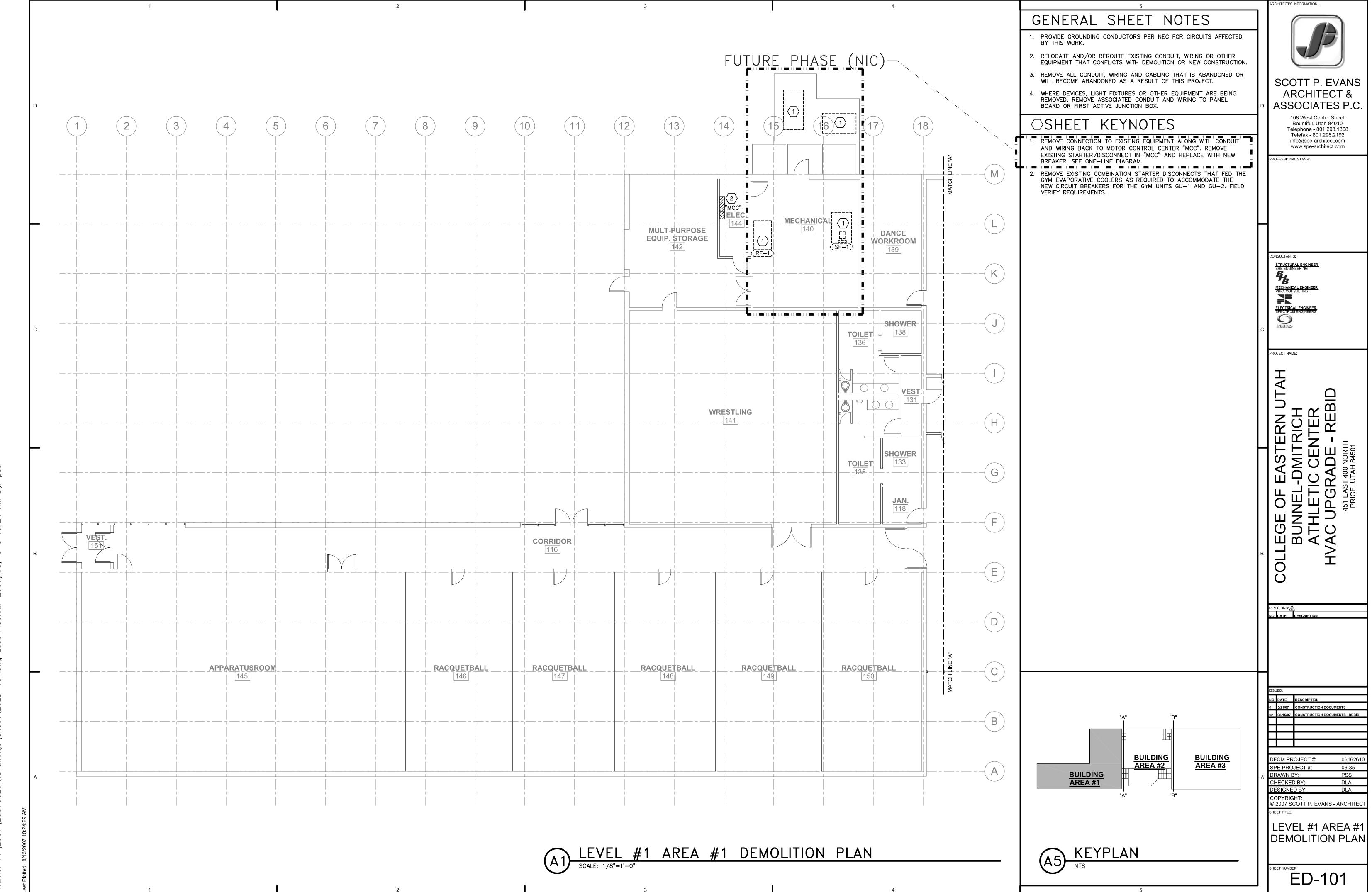
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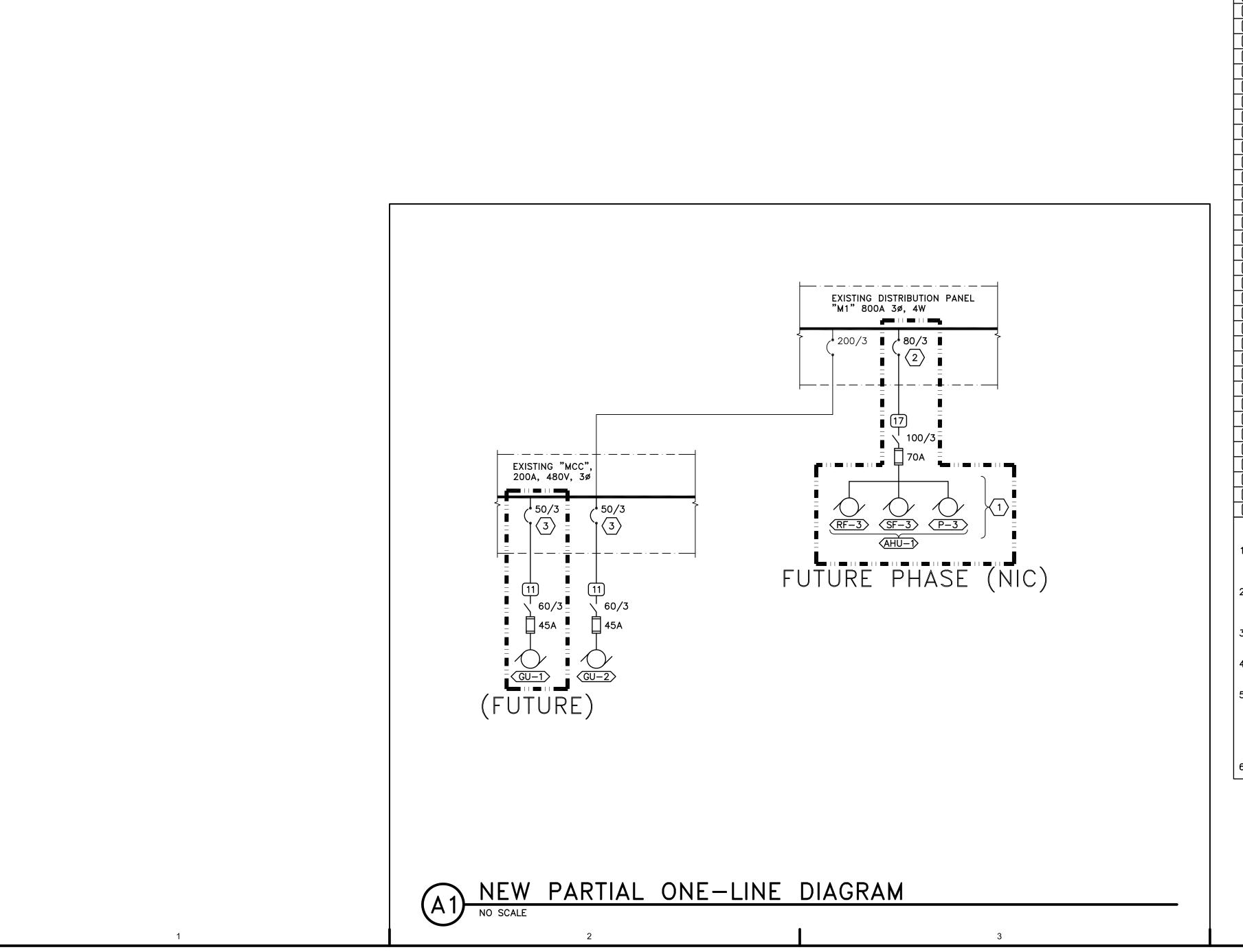
SYMBOL LEGEND. SHEET INDEX &

SCHEDULES

EE-001



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# CONDUCTOR AND CONDUIT SCHEDULE

SCHEDULE NUMBER

4	<u> </u>	JEDULE NUMB							
*,		BSCRIPT (NOT			(E.G.	.) [5]	}		
		CONDUIT	CONDU	CTOR(N	OTE 1)			l	
ΥM	AMP	SIZE	QTY	SIZE	G	IG	SE	NOTES	
1)	20	.75	2	12	12	12	8	2	
2)	20	.75	3	12	12	12	8	2,3	
3	20	.75	4	12	12	12	8	2,3	
4)	30	.75	2	10	10	10	8	2	
5)	30	.75	3	10	10	10	8	2	
3)	30	.75	4	10	10	10	8	2	
7	40	1	2	8	10	8	6	2	
3	40	1	3	8	10	8	6	2	
٣	40	1	4	8	10	8	6	2	
0	55	1	2	6	10	8	4	2	
1	55	1	3	6	10	8	4	2	
2	55	1.25	4	6	10	8	4	2	
3	70	1	2	4	8	4	2	2	
4	70	1.25	3	4	8	4	2	2	
5	70	1.25	4	4	8	4	2	2	
6	85	1.25	2	3	8	3	2	2	
7	85	1.25	3	3	8	3	2	2	
8	85	1.25	4	3	8	3	2	2	
9	95	1.25	3	2	8	2	2	2	
0	95	1.50	4	2	8	2	2	2	
Ĭ	130	1.50	3	1	6	2	2	2	
2	130	1.50	4	1	6	2	2	2	
2	150	2	3	1/0	6	2	1/0	2	
4	150	2	4	1/0	6	2	1/0	2	
4 5 6 7 8 9 0	175	2	3	2/0	6	2	2/0	2	
6	175	2	4	2/0	6	2	2/0	2	
[7]	200	2	3	3/0	6	2	2/0	2	
8	200	2.50	4	3/0	6	2	2/0	2	
9	230	2.50	3	4/0	4	2	2/0	2	
	230	2.50	4	4/0	4	2	2/0	2	
31)	255	2.50	3	250	4	1	2/0	2	
2	255	2.50	4	250	4	1	2/0	2	
$\overline{}$		_							

3 | 350 | 3 | 1/0 | 3/0 | 2 3 4 350 3 1/0 3/0 2 310 3.50 3 500 3 3/0 3/0 2 380 4 | 500 | 3 | 3/0 | 3/0 | 2 380 400 | 2 EA 2 | 3 | 3/0 | 3 | 3/0 | 3/0 | 2 400 | 2 EA 2.50 | 4 | 3/0 | 3 | 3/0 | 3/0 | 2 510 2 EA 2.50 3 250 1 4/0 3/0 2 510 | 2 EA 3 | 4 | 250 | 1 | 4/0 | 3/0 | 2 620 2 EA 3 3 350 1/0 4/0 3/0 2,4 620 2 EA 3 4 350 1/0 4/0 3/0 2,4 43 760 2 EA 3.50 3 500 1/0 4/0 3/0 2,4 2 EA 4 | 4 | 500 | 1/0 | 4/0 | 3/0 | 2,4 855 3 EA 3 3 300 2/0 4/0 3/0 2,4 855 3 EA 3 4 300 2/0 4/0 3/0 2,4 1000 3 EA 3.50 3 400 2/0 4/0 3/0 4 1000 3 EA 3.50 4 400 2/0 4/0 3/0 4 1140 3 EA 4 3 500 3/0 4/0 3/0 4 1140 3 EA 4 4 500 3/0 4/0 3/0 4 1240 4 EA 3 3 350 3/0 4/0 3/0 4 1240 | 4 EA 3 | 4 | 350 | 3/0 | 4/0 | 3/0 | 4 1675 5 EA 3.50 4 400 4/0 4/0 4/0 4 54 2010 6 EA 3.50 4 400 250 250 250 4 2660 7 EA 4 | 4 | 500 | 350 | 350 | 4 4 500 500 500 500 4 3040 8 EA 4 4180 | 11 EA 4 | 4 | 500 | 500 | 500 | 500 | 4 5 EA 4 5 10 EA 4 6 CONDUCTOR AND CONDUIT SCHEDULE NOTES

- CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
- PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
- PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
- GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
- WHEN SYMBOL SUBSCRIPT INDICATES "IG", INCLUDE "IG" OR INSULATED GROUND CONDUCTOR SCHEDULED ALONG WITH GROUND OR EQUIPMENT GROUND CONDUCTOR. WHEN SYMBOL SUBSCRIPT INDICATES "SE", SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEMS.
- RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

# GENERAL SHEET NOTES

- PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
- 2. REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC
- ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.

# ○SHEET KEYNOTES

- ALL INTERNAL WIRING OF PACKAGED UNIT TO INDIVIDUAL MOTORS BY EQUIPMENT MANUFACTURER. PROVIDE SINGLE POINT CONNECTION TO AIR HANDLER AHU-1.
- PROVIDE NEW 80A/3P BREAKER IN EXISTING MAIN PANEL "M1". FIELD VERIFY PANEL TYPE AND PROVIDE BREAKER TO MATCH.
- 3. PROVIDE NEW 50A/3P BREAKER IN EXISTING "MCC". COORDINATE REQUIREMENTS WITH "MCC" MANUFACTURER. FIELD VERIFY.



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DIAGRAMS

EE-002

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